INVOLVING LOCAL COMMUNITIES IN NATURAL RESOURCE MANAGEMENT: XILINGOL BIOSPHERE RESERVE

A Thesis Submitted to
the College of Graduate Studies and Research
in Partial Fulfillment of the Requirements
for the Degree of Master of Arts
in the Department of Geography,
University of Saskatchewan
Saskatoon, Canada

By

Yijun Zhang

PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a Postgraduate Degree from the University of Saskatchewan, I agree that the Libraries of this University may make it freely available for inspection. I further agree that permission for copying of this thesis in any manner, in whole or in part, for scholarly purposes may be granted by the professors who supervised my thesis work or, in their absence, by the Head of the Department of the Dean of the College of Arts in which my thesis work was done. It is understood that any copy or publication or use of this thesis or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of Saskatchewan in any scholarly use which may be made of any material in my thesis.

Requests for permission to copy or to make use of material in this thesis in whole or in part should be addressed to:

Head of the Department of Geography
University of Saskatchewan
9 Campus Drive
Saskatoon, Saskatchewan S7N 5A5

ABSTRACT

The purpose of this study is to assess natural resource management practices in Xilingol Biosphere Reserve (XBR) located in northern China in their institutional contexts. The practices of natural resource management in XBR are examined through their institutions which include legislation, regulations, and administrative structures of the management of XBR, responsibilities associated with land and resource rights, decision making powers and processes, and community participation. Semi-structured interviews, document analysis, and direct observation were employed to analyze resource management practices in XBR and institutions impacting these practices. XBR, as an internationally recognized biosphere reserve, has not been empowered to meet the goals of improving both the conservation of natural ecosystems and the socioeconomic conditions of local communities. In this regard, institutions and the interactions between these institutions have exerted great impacts on how natural resources are used and managed in XBR. Opportunities for improving the management of XBR rest on strengthening institutions which impact resource management practices in the reserve.

Partnerships can be applied to characterize an approach to involve both interest groups and the general public in natural resource management (Mitchell 2002). Partnerships can help promote openness, transparency, and equity in resource management processes. For XBR, partnerships prove to be an inevitable trend for improving its management and facilitating the resolution of a series of issues facing XBR including the reserve management organization's inability to

fulfill its conservation functions, complicated power relationships and interest conflicts among a wide range of stakeholders, people-park conflicts, and lack of community participation in reserve management.

Locals have experienced great socioeconomic losses accompanied with the establishment and management of XBR. However, they have not been provided with adequate compensation for their lost benefits. As a consequence, locals have resorted to violence for defense of their rights and interests. The conflict between XBR and local communities becomes a predominant issue in the reserve. To alleviate the conflict and improve reserve management, local communities should be involved in the management of XBR. Nonetheless, currently local residents have too little say in decision making and resource management given the top-down, hierarchical contexts in XBR. In this regard, community-based programs have the potential to involve locals in reserve management. Unfortunately, the chance that community-based natural resource management regimes will be implemented in XBR in the near future seems slim.

ACKNOWLEDGEMENTS

I must first acknowledge the members of my supervisory committee, for their direction and support throughout this research project. I am grateful to my supervisor, Dr. Scott Bell, for his guidance, patience, and encouragement. My sincere thanks to Dr. Maureen Reed for her guidance and insightful views on my research. I am greatly appreciated of the direction and kindly help provided by Dr. Maureen Reed throughout my research project. I am greatly indented to Dr. Xulin Guo who provided much encouragement throughout the project.

I wish to acknowledge everybody I interviewed for donating their time and their perspectives during my fieldwork in Xilingol Biosphere Reserve in China. Thanks to staff of the Xilingol Biosphere Reserve Management Bureau and managers from Baiinxile Livestock Farm for their provision of help.

I would like to thank to my parents, my sister, and my husband for their great support and encouragement over the past few years. This project would not have been possible without their support.

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

BLF	Baiinxile Livestock Farm
CBNRM	community-based natural resource management
MAB	Man and the Biosphere
MB	Management Bureau
NGO	non-governmental organization
PA	protected area
UNESCO	United Nations Educational, Scientific, and Cultural Organization
XBR	Xilingol Biosphere Reserve

CHAPTER 1: INTRODUCTION

1.1 Background

Protected areas (PAs) "represent the single most important method of conserving biological diversity worldwide" (Brandon and Wells 1992: 557). However, the creation of a PA is often accompanied by restrictions on resource use and access to the region by local communities. In response to such imposed restrictions and the associated lost socioeconomic benefits, local people often take actions in the form of resistance to, or conflict with, PA authorities. In addition, PAs worldwide, and the biological diversity these areas aim to conserve, are increasingly threatened by growing populations, continuing land conversions, and degraded natural ecosystems.

Under such circumstances, the traditional, top-down conservation approaches prove to be increasingly inadequate and ineffective in addressing a series of issues facing PAs such as the conflicts between local people and these areas. "Innovative, well-designed projects at carefully selected sites that constructively address local people-park relationships are essential to the conservation of biodiversity and thus to sustainable development" (Wells and Brandon 1993: 162). Community-based natural resource management (CBNRM) is viewed by many as an alternative approach to bureaucratic conservation.

CBNRM aims to improve both the conservation of natural ecosystems and

the socioeconomic conditions of local communities (Michaelidou et al. 2002). The basic principle of community-based programs is to "provide local communities with economic incentives and the opportunity to participate in the decision-making" (Mayaka 2002: 2001). In particular, in PAs, the provision of benefits from conservation activities to communities can improve local support for PA conservation and management (McNeely 1995; Michaelidou et al. 2002). The conservation objectives of a PA may be better achieved through community-based programs, while the welfare of local communities is simultaneously improved. In addition, CBNRM appears to be a promising approach to resolve the conflicts between PAs and local communities.

Institutions and the relationships among institutions can play a significant role in how natural resources are used and managed (Leach et al. 1999). Institutions are viewed as both the rules and the behavior patterns emerging from underlying rules or structures (Leach et al. 1999). Institutions can be further divided into formal institutions such as legislation and regulations, and informal ones such as the rules/norms governing customary resource entitlement. Moreover, an evaluation of the practices of natural resource management or community-based regimes through a focus on institutions does enable us to "[understand] local-level processes and outcomes better" (Agrawal and Gibson 1999: 639). While recently a growing number of researchers are engaged in institutional analysis of natural resource management (e.g., Gibson 2000; Ostrom 1990; Ostrom et al. 1994) or CBNRM (e.g., Agrawal and Gibson 1999; Leach et al. 1999; Wilshusen et al.

2002), this study contributes to the literature through the examination of how institutions impact the resource use and resource management practices in a PA.

Partnerships can be applied to characterize an approach to involve both interest groups and the general public in natural resource management (Mitchell 2002). When the management of a PA often involves complicated power relationships and interest conflicts among a wide range of interest groups, PA managers and their supporting conservation agencies may lack resources or capacities to deal with the PA issues alone. On the other side, local communities and other stakeholders who are affected by PA management should be provided with opportunities to participate in PA management (Gurung 1995). In other words, it is unfair for community members or other groups who are affected by PA policies or programs to be excluded from the process. "Creation of partnerships is usually justified on the basis that they provide for a more open and transparent management process, and therefore for greater equity" (Mitchell 2002: 192, 193). Partnerships, therefore, can facilitate the resolution of management issues confronted by PA managers, on the one hand, and can promote openness, transparency, and equity in resource management processes, on the other.

Biosphere reserves

Biosphere reserves are internationally recognized and included in the United Nations Educational, Scientific, and Cultural Organization (UNESCO) Man and the Biosphere (MAB) world network. A biosphere reserve remains under the jurisdiction of the nation where it is located and is subject to legislation or other institutional arrangements of the country (Batisse 1997). Each biosphere reserve is

divided into three kinds of interrelated zones: the core, buffer, and transition zones. The core area is under strict protection; surrounding the core areas are the buffer zones where activities consistent with conservation goals such as tourism and research are allowed; in the transition area, sustainable resource management practices are promoted and local communities are involved (Batisse 1997). Further, biosphere reserves are designated to fulfill three complementary functions: conservation, development, and logistic support (Figure 1). Thus they represent conservation areas where ideas of CBNRM can be explored.

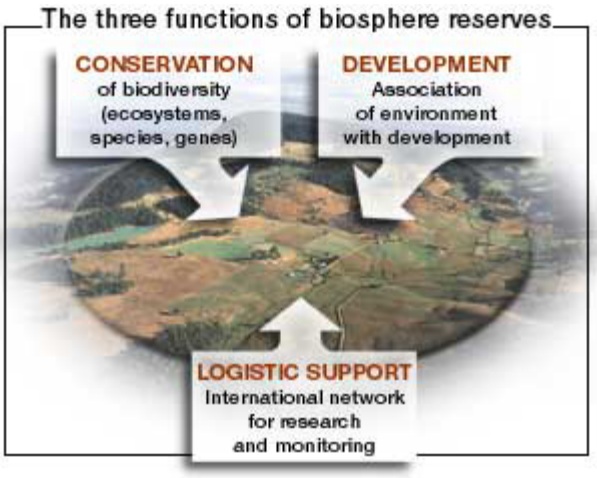

Figure 1: The three functions of biosphere reserves (Source: UNESCO 2005)

1.2 Research question and objectives

The overall purpose of this study is to assess natural resource management practices in Xilingol Biosphere Reserve (XBR) located in northern China in their institutional contexts. In response to this purpose, the study is guided by a central research question: **Is the biosphere reserve empowered to meet the goals of community-based natural resource management through formal and informal**

institutions?

To answer the research question, the specific objectives are to:

1. Assess the formal institutions in relation to natural resource management in XBR, which include:
    A) The legislation, regulations, and administrative structures of the management of XBR
    B) Responsibilities associated with land and resource rights
    C) Decision making powers and processes
2. Assess the informal institutions - community participation in natural resource management - in XBR;
3. Evaluate the potential for the application of a CBNRM regime in XBR.

Based on these explorations, policy recommendations will be provided on how to improve the management of XBR by strengthening both formal and informal institutions.

1.3 Study area

The XBR, located in Inner Mongolia Autonomous Region in China (43°26′~ 44°34′N and 115°30′~ 117°12′E) (Figure 2), is by far the largest of the country's 26 biosphere reserves included into the international MAB network, covering an area of 10,786 km^2. It lies at the southeast Mongolian Plateau, bordering the low mountains and hill regions of the west Daxing-An Mountain to the east. The area of the reserve was designated in correspondence to the catchment of the lower reach of Xilin River, an inland river in the east Inner Mongolian

Plateau (Thwaites et al. 1998). The reserve was established in 1985 as a provincial (autonomous region) level nature reserve to protect the most representative grassland ecosystem in the Inner Mongolian Plateau (Han et al. 2002). In 1987, it was accepted into the international MAB network and became a biosphere reserve. In 1997, the State Council decreed it to be a national level nature reserve namely Xilingol National Grassland Nature Reserve.

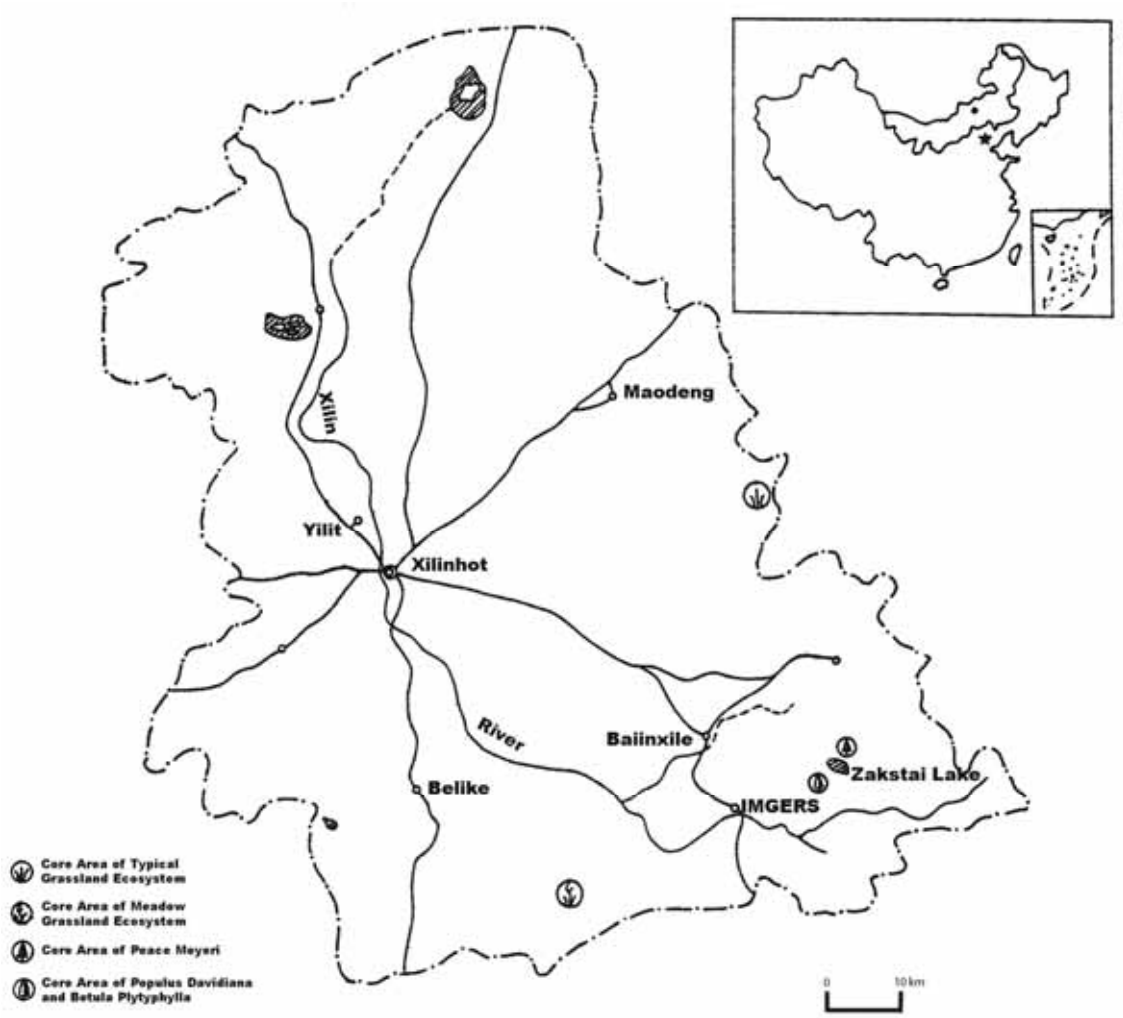

Figure 2: Map of Xilingol Biosphere Reserve (Adapted from Pamphlet on Xilingol Grassland Nature Reserve)

In this research, XBR was chosen as the site of case study because among

China's 26 biosphere reserves included into the world network of biosphere reserves, XBR was one of the first designated[1]. The relatively longer existence of XBR than most of China's other biosphere reserves enables me to assess the impacts of XBR's designation on resource management practices over a longer time range. In addition, because of its longer existence, along with the growing focus on grassland degradation in academic and policy fields in China, until now there has been a larger amount of research on XBR than on many of other biosphere reserves in the country. For example, the Inner Mongolian Grassland Ecological Research Station has implemented research on XBR since 1979. So compared to many of other biosphere reserves in China, there are more data sources for XBR. Moreover, there is relatively more literature on XBR, to which this study can contribute.

The elevation of XBR ranges from about 900 to 1500 meters (m) above sea level. The topography is higher in the southeast and descends towards the northwest, with the lowest elevation of 902 m above sea level situated at the lower reach of Xilin River Basin. The landscape of the reserve appears to be a patchwork of smooth lava tablelands, low mountains, hills, plateaus, and sand lands. Additionally, XBR is dominated by a continental, subhumid, temperate grassland climate which increases in aridity from the southeast to the northwest. The climate of the region is cold and dry in winter, and relatively warm and wet in summer. Rainfall varies in the region between about 200 mm and 500 mm per annum, with a mean annual rainfall of 350 mm. Seventy percent of the annual precipitation falls

[1] Among China's 26 biosphere reserves accepted into the international MAB network, Changbaishan, Dinghushan, Wolong, and Fanjinshan Biosphere Reserves were accepted into the MAB programme before XBR's designation as an international biosphere reserve. Changbaishan Biosphere Reserve was China's first internationally recognized biosphere reserve. It was designated in 1979.

between July and September (Han et al. 2002).

The dominant ecosystem type in XBR is the temperate grassland ecosystem, which constitutes approximately 90% of the reserve's total area, along with other types of ecosystems including the sandy-forest ecosystem, the agricultural ecosystem, the moorland ecosystem, and others (Han et al. 2002). In addition, the considerable variations in climate and soil give rise to great habitat and species diversity in the region. About 76 bird species and 33 animal species, with endangered species including Red-crowned Crane (*Grus japonensis*), White Stork (*Ciconia ciconia*), Great Bustard (*Otis tarda*), and Pallas's Fishing Eagle (*Haliaeetus leucoryphus*), have been found in the reserve. In addition, there are over 800 plant species found in the area, with *Stipa grandis*, *Stipakrylovii*, and *Aneurolepidium chinese* most abundant in the region (Han et al. 2002).

Furthermore, XBR is home to about 200,000 people, with the population having almost doubled since the reserve's establishment in 1985. The population is concentrated in Xilinhot Municipality where some 150,000 people live, with the remaining population dispersing in XBR's other regions. The Han Chinese constitutes the largest group, followed by the Mongolian Minority, among other minority ethnic groups. Animal husbandry is the pillar industry of local economy, with rangeland encompassing about 80% of the reserve's total area (Han et al. 2002). Other primary economic sectors in the reserve include agriculture, tourism, and industry, etc.

In so far as the administrative structure is concerned, the whole reserve area is in the jurisdiction of Xilinhot City, which is within the territory of Xilingol

League[2]. XBR consists of the following administrative units: Xilinhot Municipality, the livestock farms[3] of Baiinxile, Maodeng, and Beilike, the northern portion of Baiinkulun Livestock Farm, Yilit Township (*sumu*), the eastern portion of Aershanbaolit Township (*sumu*), and a part of Xiwuzhumuqin and Abaga banners[4] (*qi*).

Functional areas

XBR is divided into four kinds of functional areas: the core, buffer, transition, and experimental zones. The reserve has five core areas (Table 1 and Figure 2), with a total area of 18.5 km^2, approximately 0.17% of the reserve's total area. Compared to many other biosphere reserves, the ratio of the total area of core zones in XBR is quite small, which may have some impact on the institutions and resource uses in these core areas. This may also lead to the differences of institutions and resource management practices in the core areas between XBR and other biosphere reserves. In addition, five buffer zones, covering a total area of 56 km^2 (0.52% of XBR's total area), are centrically surrounding the five core areas up to 1 km of radiums respectively and thus form five relatively narrow rings around the core areas (refer to Table 1). Outside the buffer zones is the transition area, inside which experimental zones are set up. These experimental zones provide space for field research and demonstration functions. Most of them are situated near the core or buffer zones. In total there are five types of experimental zones in the reserve including the demonstration areas for livestock husbandry, hay

[2] Mongolian minority administrative levels, equal to prefecture.
[3] A Livestock Farm is equal to a county in terms of administrative levels.
[4] Mongolian minority administrative levels, equal to county.

harvesting, cultivated meadow, rehabilitating degraded grasslands, and grassland ecosystem.

Table 1: The core areas and buffer zones in Xilingol Biosphere Reserve

Core Area	**Area of Core Area (km^2)**	**Area of Buffer Zone (km^2)**	**Location of the Core Area and Buffer Zone**
Core Area of Meadow Grassland Ecosystem in Chaganaobao	5.5	15	Baiinxile Livestock Farm
Core Area of Grassland Ecosystem on Basalt Tableland in Bayanwula	5.5	20	Baiinxile Livestock Farm Beilike Livestock Farm
Core Area of Typical Grassland Ecosystem on the Hailiute Plain	5.5	15	Xiwuzhumuqin Banner (*qi*)
Core Area of *Peace Meyeri* in Taowuyintaolegai	1	3	Baiinxile Livestock Farm
Core Area *of Populus Davidiana* and *Betula Plytyphylla* in the Abutouer Mountain	1	3	Baiinxile Livestock Farm
Total Area	**18.5**	**56**	

As presented in Table 1, four out of five XBR's core and buffer zones are situated within Baiinxile Livestock Farm (BLF), a state-owned farm encompassing a total area of 3,730 km^2. The total population within the farm is now over 11,000 people, including some 5,500 staff members and about 6,000 of their family members[5]. The population in the farm has increased considerably since its foundation in 1950 when the farm had only 20 staff. The Livestock Farm is equivalent to a 'county' for administrative purposes, with the farm director being equivalent to the head of the county government in administrative rank. Further, the farm consists of 6 subfarms which are equivalent to townships in terms of

[5] Interviews with the managers from BLF.

administrative units. The 6 subfarms have been merged from the previous 12 subfarms for management purposes.

1.4 Thesis organization

The thesis is organized as follows. Reviews of the CBNRM, institutions, and partnerships literature are presented in Chapter 2, along with the research methods used for this study. The legislative frameworks and administrative structures for the management of XBR are examined in Chapter 3, and particularly, organizational roles and dynamics of different organizations responsible for reserve management are described. Chapter 4 presents land rights and land use conflicts in XBR within the context of land rights and grassland conditions in the country. Chapter 5 explores the institutions of decision making and community participation in natural resource management in XBR. More specifically, it presents decision making powers and processes in XBR, the trend of the XBR toward the formation of partnerships for reserve management, an evaluation of the level of community participation in XBR, and a discussion of community participation mechanisms applied in the reserve. Concluding statements and recommendations are made in Chapter 6.

CHAPTER 2: METHODOLOGY

2.1 Conceptual framework

Three bodies of literature throw light upon this research. Section 2.1.1 examines the concepts of community and the evolving representations of communities in the literature on resource management and conservation, followed by a brief description of CBNRM theories. Definitions of institutions are clarified in Section 2.1.2, along with the description of the relationships between institutions and natural resource management. In this section, the institutions I will explore in this study are also listed. These institutions influence resource management practices and resource uses in XBR. Finally, Section 2.1.3 provides a partnership framework to present the partnership theories in relation to PA management, and to guide the exploration of institutions of decision making and community participation in the study. The section also presents key elements for successful partnerships, Arnstein's ladder of civic involvement, and public participation mechanisms.

2.1.1 Community-based natural resource management

Concept of community

In the sociological literature, there is a wide variety of definitions of community including community of place, community of interest, and community

of attachment (Carroll 1995; Crowe and Allan 1994). For the purpose of this study, I focus on the concepts and representations of community in the literature on resource management and conservation.

"[T]he history of community in conservation is also a history of revisionism" (Agrawal and Gibson 1999: 631). During the period of coercive, state-centered resource management strategies, communities were seen as obstacles to conservation of natural resources because the livelihood of community members depended on these resources (Agrawal and Gibson 1999). Since the 1980s, such images of communities have radically changed both among international donor agencies and in academic fields; communities can become good stewards of natural resources if local residents are involved in managing these resources (e.g., Gibson et al. 2000; Singleton and Taylor 1992).

The early work that resurrected the central role of communities in conservation and management of natural resources shared a series of assumptions about community, environment, and their relationships (Leach et al. 1999). "Such communities are seen as relatively homogeneous, with members' shared characteristics distinguishing them from "outsiders"" (Leach et al. 1999: 228). Communities were assumed to have existed in harmony and equilibrium with their environment until the intervention of factors from the outside world (Leach et al. 1999).

Such visions of communities, however, were criticized by many researchers as oversimplified (e.g., Agrawal and Gibson 1999; Belsky 1999; Leach et al.1999; Li 1996; Li 2002). They argued that such representations of communities as small,

homogeneous, and having shared norms and identities ignore the complexity and differentiation inherent in these communities, where both internal and external actors intervene in the process of natural resource management (Agrawal and Gibson 1999; Leach et al. 1999; Li 1996). Furthermore, such images of communities may lead to poor outcomes on the ground. "[T]heir oversimplification and flawed basic assumptions mean they serve as poor and misleading guides for translation into operational strategies and programs" (Leach et al. 1999: 229). Rather than achieving their goals of increasingly empowering communities in resource management, they may undermine these goals by advocating such representations for communities (Agrawal and Gibson 1999). Instead, these researchers advocated a distinct representation of community. Leach et al. (1999), for instance, emphasized that there exist "diverse and often conflicting values and resource priorities" (230) in communities.

Concerning the concept of community adopted in this study, the "territorial community" concept is applied. "Willmott (1986, ch. 6) suggests that basically 'community' refers to people having something in common, and that this shared element is often understood geographically; he terms this 'territorial community' or 'place community'" (Crowe and Allan 1994: 3). Further, "[w]hether or not they are regarded as comprising a single community depends on one's perspective and scale of analysis" (Leach et al. 1999: 230). This study focuses on assessing natural resource management practices in XBR. XBR has a defined geographic location and its own geographic boundary. People in XBR live in a same biosphere reserve. Living within the same geographic boundary of XBR is their shared character. So

my “perspective and scale of analysis” make me define XBR as “a single community.”

Additionally, in light of the recent work in the literature on resource management and conservation, XBR is seen as a dynamic and internally differentiated community within the reserve border, in which the social actors with different interests and political powers interact with each other and with external actors. More specifically, while they reside within the same boundary (of the biosphere reserve), people in XBR are highly heterogeneous in identities, interests, and power relations, etc. There exist complex and dynamic interactions between differentiated social actors in XBR, and between these peoples with “outsiders” such as governments at various levels, transnational corporations, or other communities.

Community-based natural resource management in theory

CBNRM is a paradigm shift from top-down and authoritarian resource management regimes. It has attracted the attention of national governments, donor agencies, and non-governmental organizations (NGOs) since the 1980s. The apparent failure of the state-led conservation/development policies and practices led to a growing emphasis on local participation (Agrawal and Gibson 1999; Kellert et al. 2000; Taylor 1998; Western and Wright 1994). In addition, an increasing focus on “government decentralization, devolution to local communities of responsibility for natural resources held as commons, and community participation” (Leach et al. 1999: 225) has given rise to CBNRM.

CBNRM has the following features: (1) integration of socioeconomic development with biodiversity conservation; (2) involvement of community members in resource management and conservation; (3) devolution of power and control from state governments to local communities; (4) endeavors to defend or strive for the legitimacy of local resource and property rights (Kellert et al. 2000). Community-based programs and policies are based on the premises that local residents have more vested interest in sustainable resource use and management, and they know more about local ecological conditions and processes than states or distant corporations, so they are more appropriate to manage local resources (Belsky 1999; Brosius et al. 1998; Li 2002).

Yet, rhetoric aside, the practical implementation of community-based policies or programs often falls short of expectation (Kellert et al. 2000). While many issues have been pointed out to explain the failure of these community-based programs, such as "a tendency for projects to be too short-term in nature and overreliant on expatriate expertise" (Leach et al. 1999: 226), the most frequently mentioned is the oversimplification of the images of communities (e.g., Leach et al. 1999; Li 1996). For example, some researchers argued that the oversimplified and flawed assumptions of CBNRM have misled the operators of such community-based programs (e.g., Leach et al. 1999; Li 1996).

In response to this issue, these scholars examined community-based policies and programs in their specific political, economic, and social contexts (e.g., Belsky 1999; Brechin et al. 2002; Brosius et al. 1998; Kellert et al. 2000; Lane and Rickson 1997; Leach et al. 1999; Li 2002; Wilshusen et al. 2002). "[B]oth

advocates and analysts must remain alert to the contested and changing variety of cultural and political agendas and contexts in which these programs are being imagined or implemented" (Brosius et al. 1998: 159). The concerns raised here led to a new theoretical approach for examining CBNRM. Some scholars attempted to evaluate and improve the practices of CBNRM through a specific focus on institutions (e.g., Agrawal and Gibson 1999; Leach et al.1999; Wilshusen et al. 2002). "To date, a poor understanding of such dynamic institutional arrangements has impeded practical efforts in CBNRM" (Leach et al. 1999: 226). Therefore, an institutional analysis of resource management practices or CBNRM enables us to evaluate these practices from a more effective perspective and thus to understand the practices better.

2.1.2 Institutions

A growing number of researchers have engaged themselves in institutional analysis of natural resource management and community-based regimes, concerned with both policies and practices. For instance, when examining community-based regimes, Agrawal and Gibson (1999) advocated a focus on institutions rather than on communities, the images of which are frequently oversimplified. They (1999) further argued that "[a] focus on institutions does not necessarily lead to better outcomes (more biodiversity, more biomass, sustainable stock levels, etc.) but it does offer the tools for understanding local-level processes and outcomes better" (639).

Moreover, in the literature which assesses CBNRM through a focus on institutional arrangements, different concepts of institutions are adopted.

"Institutions can be seen as sets of formal and informal rules and norms that shape interactions of humans with others and nature" (Agrawal and Gibson 1999: 637). Leach et al. (1999) "view institutions not as the rules themselves, but as regularized patterns of behavior that emerge from underlying structures or sets of "rules in use"" (237). Cortner et al. (2001) adopted Ostrom's definition viewing institutions "not only in terms of organization and structure, but also as sets of rules and standards of behavior" (68).

The three concepts mentioned above are different in the scales of institutions. Compared to Agrawal and Gibson (1999) as well as Cortner et al. (2001), Leach et al. (1999) adopted a relatively broader concept of institutions. They (1999) regarded institutions at different scales and the interactions between these institutions acting as critical roles in impacting who gains access to and control over local resources, and how these resources are used and managed.

> The relationships among these institutions and between scale levels is of central importance in influencing which social actors - both those within the community and those at some considerable remove from it - gain access to and control over local resources. In turn they influence the uses to which resources are put and the ways they are managed, and thus progressively help to modify and shape the landscape over time. (Leach et al. 1999: 234)

For the purpose of this study, I adopt Leach et al. (1999)'s definition because compared to institutions' concept defined by Agrawal and Gibson (1999), Leach et al. (1999) included people's behavior patterns into the concept. In this research, both "rules" and resource management practices that "emerge" from the underlying rules are evaluated. In addition, both of the two articles (i.e., Agrawal and Gibson 1999; Leach et al. 1999) define institutions as formal and informal

rules and norms. For example, Leach et al. (1999) made a further distinction between formal and informal institutions.

> Formal institutions may be thought of as rules that require exogenous enforcement by a third-party organization…Informal institutions, however, may be endogenously enforced; they are upheld by mutual agreement among the social actors involved, or by relations of power and authority between them. (Leach et al. 1999: 238)

Furthermore, institutions are not fixed but are constantly shaped and reshaped by the behaviors of social actors, and institutional changes may occur when individuals act to challenge their forms (Agrawal and Gibson 1999; Leach et al. 1999). Such character of institutions is in accordance with what is called "dynamic of institutions" in the literature.

In light of these studies in the literature, I examine the practices of natural resource management in XBR through their institutions which include the legislation, regulations and administrative structures, responsibilities associated with land and resource rights, decision making powers and processes, and community participation. Based on theories of Leach et al. (1999), these institutions and the interactions between them play a critical role in resource uses and resource management practices in XBR.

2.1.3 Decision making through partnerships

PAs often imply the existence of complicated interest/authority conflicts across a broad range of interest groups and stakeholders. The resolution of the conflicts over PA management and particularly those related to large bioregions often requires shared managerial authority and responsibilities among a wide range

of agencies holding various mandates (Barborak 1995). The partnership proves to be one way by which conflicts between different agencies and organizations can be resolved and shared decision making on PA management achieved. Adopting Mitchell (2002)'s definition,

> A partnership is a mutually agreed arrangement between two or more public, private or non-governmental organizations to achieve a jointly determined goal or objective, or to implement a jointly determined activity, for the benefit of the environment and society (182).

At this point, Mitchell (2002)'s "consultative partnerships" are particularly put forward to shed light on this study. Consultative partnerships are one type of alliances which are categorized on the basis of the degree of participation and extent of power sharing among partners[6] (Mitchell 2002). In consultative partnerships, the government agency actively gathers input from partners which can exert great influence on decision-makings, while it is the government agency that retains control and decides to what extent the advice from partners will be incorporated into decisions (Mitchell 2002). A consultative partnership always takes the form of a committee or council which is established to provide input to the government agency regarding a specified issue (Mitchell 2002).

The purpose of partnerships is to achieve compatible objectives (Mitchell 2002). In this regard, while different organizations may have diverse objectives and interests, these objectives and interests can be compatible (Murphree 1994). For

[6] Four types of strategic alliances including contributory partnerships, operational partnerships, consultative partnerships, and collaborative partnerships are presented by Mitchell (2002). These different types of alliances are identified according to the degrees of participation and extent of power sharing among partners. For instance, while contributory partnerships involve limited level of participation of partners who provide support typically in terms of funding to the partnerships, in operational partnerships, partners participate in practical work and can influence decision making (Mitchell 2002). And collaborative partnerships are the only one of the four partnerships in which government gives up a part of its control and authority to other partners (Mitchell 2002).

instance, different groups in a PA may have a common goal of environmental stewardship since it can bring about a flow of benefits such as fresh air, improved natural ecosystems, growing agricultural or livestock products, and others. In addition, these diverse groups may enjoy different kinds of benefits from environmental stewardship. For example, tourists enjoy the fresh air and the scenic landscape in the PA. PA practitioners and conservation agencies can have well conserved species and habitats as an indication of their working performance. And local inhabitants benefit from the improved natural environment surrounding their places of living. More importantly, the growing agricultural or livestock productivity associated with the improved biological conditions can result in an improved standard of living. Therefore, certain PA issues "can bring together frequently "diverse" sector interests" (Murphree 1994: 405).

At this time, the research utilizes a framework provided by Venter and Breen (1998) to present the theories of partnerships as related to PA settings, to guide the assessment of institutions of decision making and community participation in XBR, and to shed light on the recommendations from this study in terms of improving partnerships for XBR's management. Venter and Breen (1998)'s partnership framework for PA management is based on the overlap between different needs and interests of PA staff, local residents, and other local entities (Figure 3). PA staff aim to fulfill their conservation roles and functions, while local community members and other local entities seek to improve their socioeconomic conditions (Venter and Breen 1998). Moreover, conservation and development do not contradict with one another; these two goals can be mutually

compatible. A management partnership between PA staff and local communities, in turn, can be established on the basis of their different but compatible objectives and interests.

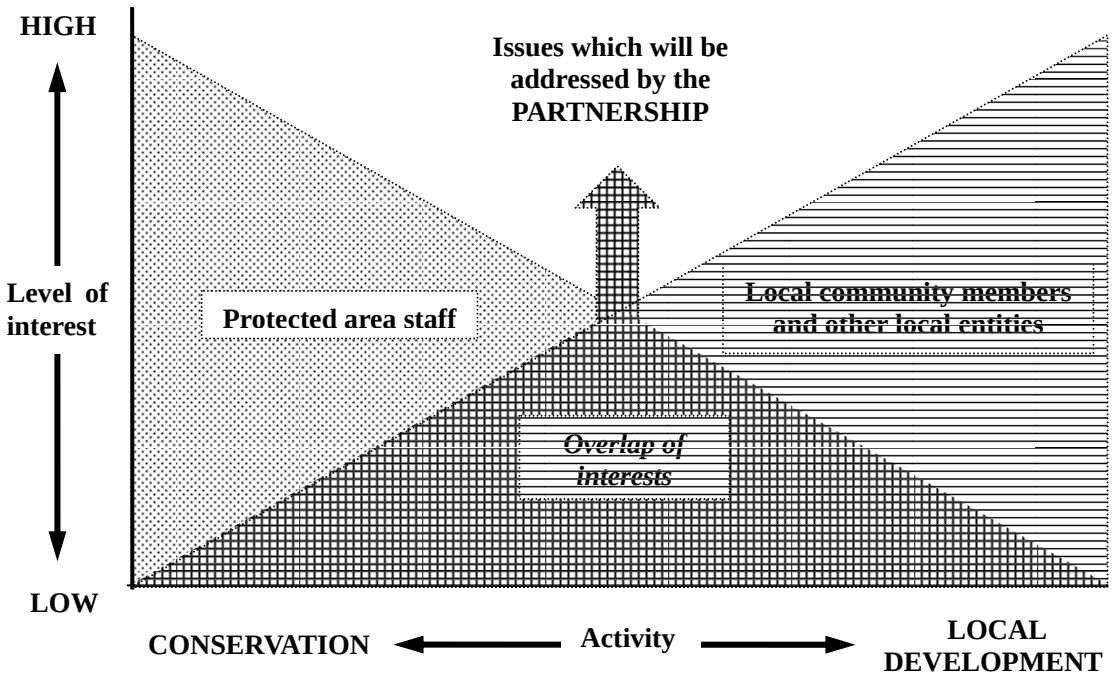

Figure 3: Conceptual representation of the different interests that characterize the involvement of protected area staff, local community members, and other local entities (Adapted from Venter and Breen 1998: 809)

Figure 3 illustrates the partnership between PA staff and local communities. In this research, partnerships are applied in a broader sense, which involve more partners including PA staff, different governments/government agencies, non-government sectors, local communities/other local entities, and other interest groups or stakeholders. Therefore, Figure 3 is expanded in Figure 4 to include additional partners into the partnership for PA management. Furthermore, in the partnership framework presented in Figure 4, local communities are regarded as an important partner in the management of PAs. So in this study, community

participation can be viewed as a part of decision making in PA management, while it implies the involvement of local communities in decision making processes. The institutions of decision making and community participation, therefore, are inseparable. In this regard, Figure 4 provides a framework to guide the assessment of institutions of decision making and community participation in XBR.

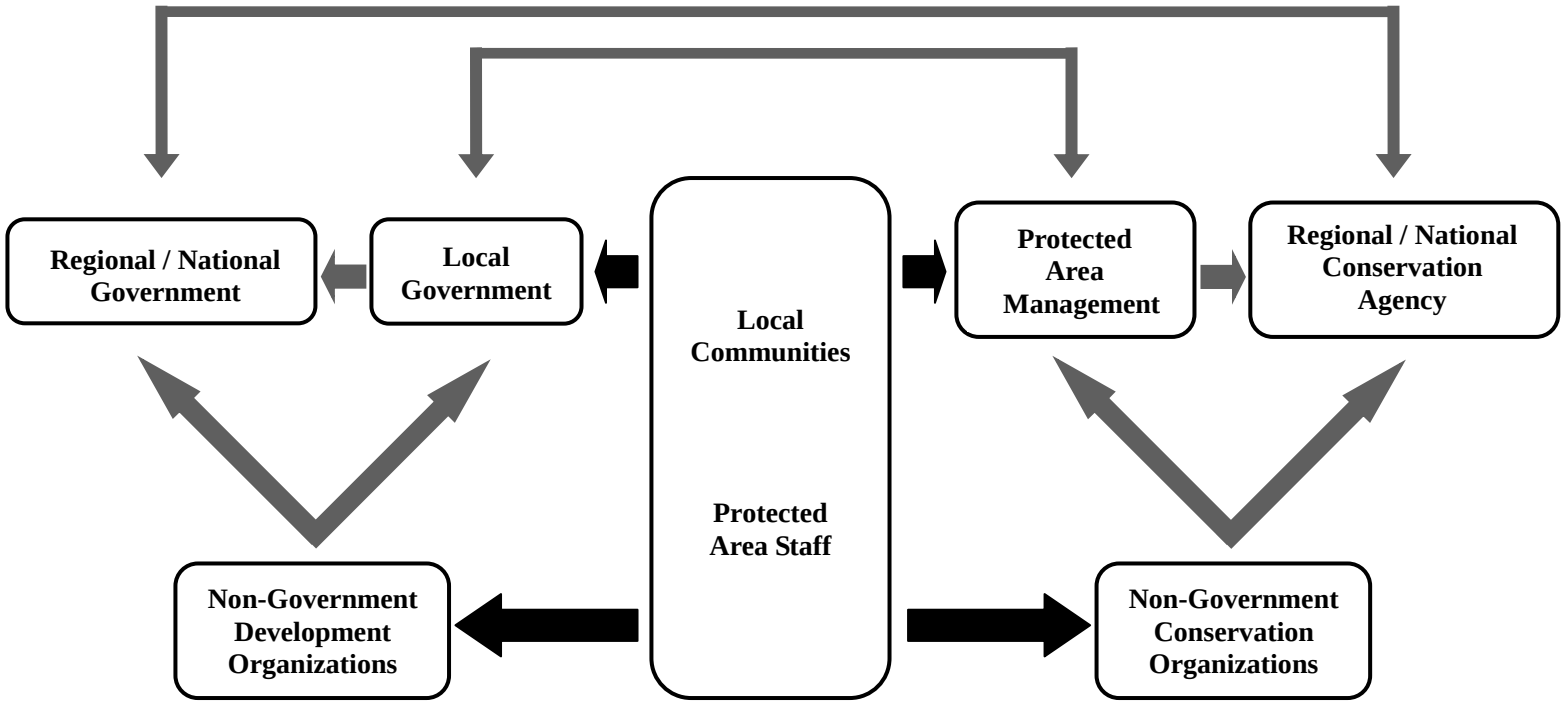

Figure 4: The partnership framework for the management of protected areas (Adapted from Venter and Breen 1998: 813)

The formation of partnerships often presents many challenges. The establishment of partnerships requires that governments and their agencies devolve at least part of their authority and decision making powers. However, “the inbuilt tendency of government structures is to assert power and claim authority, even when they lack the resources to fulfill the implied responsibilities” (Murphree 1994: 415). This is particularly the case when partnerships are to be built across jurisdictional boundaries. Government agencies and other organizations tend to be reluctant to share powers beyond their own jurisdictions since they fear the formation of collaborative relationships may threaten their decision making powers, administrative discretion, and economic interests, etc. (Gray et al. 2001). As a result, if the partnerships are to succeed, all partners must gain, or at least, perceive to gain, some benefits from such collaborative relationships (Gray et al. 2001; Mitchell 2002). Besides shared benefits among all partners, there are also other elements important for successful partnerships, which are provided by Mitchell (2002) and are presented in Table 2.

Table 2: Key elements for successful partnerships

Elements	Description
Compatibility between participants	Such compatibility often is based on respect and trust, even when legitimately different expectations or needs exist. With respect and trust, differences can often be overcome, and indeed can be used to help each participant to broaden his or her outlook.
Benefits to all partners	If there are no real benefits to all the participants, and if they are not perceived to be shared fairly, then a sustained partnership will be difficult to achieve.
Equitable representation and power	Equitable representation and power for participants need to be agreed upon and established. Even though some partners may have fewer resources or capacity than others, means must be found to ensure that all partners are involved.
Communication mechanisms	There is a need both to facilitate communication internally between the partners, and with groups external to the partnership.
Adaptability	Adaptability, especially given the uncertainty and changing circumstances that often are encountered in resource and environmental issues. A willingness to be flexible and to learn from experience…usually is a strong advantage.
Integrity, patience and perseverance by partners	Obstacles often will be encountered, frustration will occur, progress will be slow or slowed down, and sighs of progress may not appear for some time. These elements, combined with trust and respect, allow partners to get through the difficult times which inevitably occur.

Source: Mitchell 2002: 186.

As is referred to above, in this study, the institutions of decision making and community participation are analyzed on the basis of the partnership framework presented in Figure 4. The framework includes almost all important interest groups and stakeholders in PA management. Therefore, all of the groups, one of which is local communities, listed in the framework should be involved in decision making and management of XBR. This study particularly analyzes the institution of

community participation because I regard local communities as one of the most important stakeholders in PA management. Additionally, community participation is a significant institution to explore, if the practices of natural resource management in XBR are to be clearly assessed. Further, many of the management issues in PAs such as the conflicts between PAs and local communities are closely linked to problems facing community participation in these areas. The problems confronted by the institution of community participation include the inadequate degree of community participation and ineffective community participation mechanisms used in PAs, among others.

In this regard, Arnstein's ladder of civic involvement (Table 3) is informative for the evaluation of the level of community participation in a PA. Arnstein's ladder of civic involvement describes different degrees of public participation ranging from non-participation to full community control, based on the extent to which communities share powers in decision making. While "manipulation" and "therapy" aim at educating or curing people rather than involving them, "informing" and "consultation" enable people to be informed and to provide feedback which tends to be ignored (Arnstein 1969). At the level of "placation," communities are allowed to offer advice yet with limited power in decision making; communities' decision making authority increases from "partnership" to "delegated power" and "citizen control," at which people participate in planning and management with growing powers (Arnstein 1969). Arnstein's ladder of civic involvement can provide a reference scheme to help assess the existence or lack of community participation as well as the degree and

extent of community participation in decision making and resource management in a PA.

Table 3: Arnstein's ladder of civic involvement

Rungs on the ladder of citizen participation	Nature of involvement	Degree of power sharing
1. Manipulation	Rubberstamp committees	
2. Therapy	Power holders educate or cure citizens	Non-participation
3. Informing	Citizens' rights and options are identified	
4. Consultation	Citizens are heard but not necessarily heeded	Degrees of tokenism
5. Placation	Advice is received from citizens but not acted upon	
6. Partnership	Trade-offs are negotiated	
7. Delegated power	Citizens are given management power for selected or all parts of programmes	Degrees of citizen power
8. Citizen control		

Source: Arnstein 1969 as cited in Mitchell 2002: 187.

Moreover, as mentioned above, to promote community participation in PA management, effective mechanisms for community participation are greatly needed. This is because effective community participation mechanisms can facilitate information sharing and shared decision making between local communities and decision makers such as government agencies in PA management. They, in turn, can help involve community members in conservation and management of PAs. At this point, Mitchell (2002)'s public participation mechanisms (Table 4) are quite

informative.

Table 4: Public participation mechanisms

	Representativeness	Information in	Information out	Continuous exchange	Ability to make decisions
Public meetings	Poor	Poor	Good	Poor	Poor-fair
Task force	Poor	Good	Good	Good	Fair-good
Advisory groups	Poor-good	Poor-good	Poor-good	Good	Fair
Social surveys	Good	Poor	Fair	Poor	Poor
Individual/group submissions	Poor	Good	Poor	Poor	Poor
Litigation	Poor-fair	Good	Good	Poor	Good
Arbitration	Poor-fair	Good	Good	Poor	Good
Environmental mediation	Poor-fair	Good	Good	Fair	Good
Lobbying	Poor-fair	Good	Fair	Good	Fair

Source: Mitchell 2002: 193.

Mitchell (2002) presented diverse mechanisms that can be used for public participation. These mechanisms are diverse in their strengths/weaknesses in terms of soliciting public input, facilitating communication, and the ability to make decisions. For instance, the abilities of public meetings to facilitate communication are limited, and their representativeness is relatively poor. A task force is good at facilitating two-way communication and information sharing between decision makers and the public. The strengths of social surveys rest on their broad resprentativeness and their potentials to encourage public input. And the advisory group is a participatory approach by which a group is commonly created to investigate a problem (Mitchell 2002). This table suggests, then, that there is no single, effective way to engage citizens. Rather the choice of mechanism may vary

according to the purpose of the exchange.

2.2 Research methods

2.2.1 Research strategies

To explore resource management practices in XBR and how these practices are impacted by their institutions, a case study approach is utilized in this research. "A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin 1994: 13). In this study, natural resource management practices in XBR are assessed within their institutional context.

According to Yin (1994), one of the most frequently cited problems facing the use of case studies is the difficulty in generalizing research findings (Yin 1994). In this study, a principle of using the case study approach is based on what Yin (1994) put forward, that case studies are intended to generalize in a theoretical rather than a statistical nature. In other words, the case study is applied to explore and expand theories, which in this study include the theories of CBNRM, institutions, and partnerships. Additionally, as natural resource management is a highly context-based phenomenon and may change according to different social, economic, and political settings, the findings from this study are not directly applicable to other locations.

Moreover, a major strength of case study research is that researchers can take advantage of using multiple sources of evidence. Yin (1994) argued that various data sources are complementary, and thus using multiple sources of

evidence in a case study "allows an investigator to address a broader range of historical, attitudinal, and behavioral issues" (92). He further claimed that the findings and inferences in a case study would be more convincing if they were based on various data sources. This is consistent with what Patton (1990) suggested, that different data sources can be used to complement and validate the findings of one another.

2.2.2 Data collection and data analysis

Based on the fieldwork conducted in the summer, 2004, data for the case study in XBR were collected from three main data sources: semi-structured interviews, document analysis, and direct observation.

Semi-structured interviews

Interviews can help us gain access to people's experiences, opinions, and perspectives (Bradshaw and Stratford 2000; Kitchin and Tate 2002; Patton 2002). An interview is "most appropriately used in situations in which an in-depth knowledge of issues and relationships is needed" (Tashakkori and Teddlie 1998: 103). In this study, to explore diverse experiences and opinions held by people in XBR toward certain resource management issues, an interview approach serves as the most important dimension of the three data collection methods applied.

Additionally, among different interview strategies ranging from unstructured and open-ended to structured and closed-ended interviews, the semi-structured approach and open-ended questions were selected for the purpose

of this study. Semi-structured interviews provide a useful research method that not only enables interviewers to maintain some flexibility in exploring specific issues but ensures all topics of interest will be covered (Kitchin and Tate 2002). In this approach, interviews are guided by questions, topics, or both, which are specified in advance. For example, this study used interview questions listed under different topics, as presented in Appendix I. Further, open-ended questions were applied in this study to elicit more responses and information from respondents than what the closed questions can.

A total of fourteen face-to-face interviews with key informants were carried out in the summer, 2004. Key informants were contacted based on their involvement in natural resource management in XBR. Nine of them were members of the XBR Management Bureau, and five were managers from BLF. All the interviews were conducted in respondents' place of work. An interview schedule (see Appendix I) was used in the fieldwork. One of the advantages of the interview schedule is to make sure that "all issues are covered as appropriately as possible" (Dunn 2000: 56). The topics covered in the interviews, which include organization, land and resource rights, decision making, community participation, and biosphere reserve, along with the questions under each topic, are listed in the schedule.

Prior to the interview, I provided each potential respondent with a written introduction which clarified the purpose of my research and the interview conditions, an interview schedule listing the questions and themes to be covered during the interview, and a consent form. At the beginning of the interviews, I reviewed the purpose of my research with respondents, and clarified both the

confidentiality of the interviews and respondents' rights to withdraw from the study at any time. The interviews were audiotaped. All microcassettes have been locked and stored in a locked cabinet in Dr. Bell's office (They will be kept for a minimum of five years). During the interviews, I also took field notes by hand to "supply pertinent information about the circumstances of the interview not captured by the recording" (Tashakkori and Teddlie 1998: 63). Field notes and audiotapes were transcribed at the intervals between interviews during the fieldwork and after I returned to Canada.

Document analysis

In this study, the information from interviews was complemented with the review and analysis of relevant documents. Documents can provide basic information for the research (Patton 1990). Further, document analysis can help cross-check and complement information from other data sources (Yin 1994). But on the other hand, while documents are useful sources of data, they should be applied with particular understanding of their inherent subjectivity and bias (Kitchin and Tate 2002; Patton 1990; Yin 1994).

In this research, documentary evidences include a variety of materials ranging from reserve management plans to propaganda pamphlets, some of which are listed below.

- Management Plans (1999 and 2003) for XBR
- Official reports on grassland degradation in Xilingol League
- Regulation on Xilingol National Grassland Nature Reserve

- Other legislation and regulations[7] in relation to nature reserve management, grassland management, and land and resource tenure
- Pamphlets on XBR and BLF
- Scholarly works

"In qualitative research, the number of people we interview, communities we observe, or texts we read is less important than the quality of who or what we involve in our research, and how we conduct that research" (Bradshaw and Stratford 2000: 38). On the other hand, how many and what documents to read was still an issue I had to deal with before document analysis was implemented. This decision depends heavily on the purpose of the inquiry and it is also affected by the availability of time and resources for researchers (Bradshaw and Stratford 2000).

Based the statements above, while there are a great number of documents that seem relevant to the theme of my research, I chose to review and analyze documents which are closely linked with the purpose and objectives of this study. More specifically, I chose documents that can provide me with insight into natural resource management practices in XBR and their institutions. In other words, I paid attention to and pulled out information relevant to the legislation, regulations and administrative structures of the management of XBR, land and resource rights, decision making and community participation, and resource use and resource management practices in XBR.

Finally, the analysis of documents was triangulated with the interview transcripts. To evaluate the validity of the information from documents, I

[7] They include the *Nature Reserve Regulation,* the *Principle for Categories and Grades of Nature Reserves,* the *Land Management Rule for Nature Reserves*, the *Regulation for Forest and Wildlife Reserves,* the *Regulation on Grassland Management in Inner Mongolia Autonomous Region,* the *Law of the People's Republic of China on Prevention and Treatment of Desertification,* and the *Rangeland Law.*

cross-checked the documents with the information from interviews. In particular, I paid attention to both the consistency and inconsistency of the information from these two data collection approaches. Inferences and findings were attained from consistent information. For the inconsistent information, I reviewed and analyzed additional documents to provide further clarification. At this point, different documents may be not consistent with each other concerning the statement of certain issues. Information from interviews, in turn, were used to help cross-check the validity of analysis of documents regarding particular issues.

Direct observation

In this study, direct observation offered me the opportunity to witness conditions of land and resource uses in XBR. Field visits were primarily conducted at Xilinhot Municipality, Baiinxile Livestock Farm, and Beilike Livestock Farm to observe the current conditions of land and resource uses along with the events related to natural resource management.

Finally, the results of content analysis of interview transcripts and relevant documents, and the information from direct observation, were integrated to assess resource management practices in XBR in their institutional contexts. In other words, the findings from different data sources cross-checked, triangulated, and complemented each other to explore in-depth the phenomena of interest (Teddlie and Tashakkori 2002).

2.2.3 Limitations of the research methods

This study has limitations inherent with the research methods utilized to fully address the second research objective - to assess the institution of community participation in XBR - in so far as all respondents in the interviews were either the reserve staff or managers from BLF. The institution of community participation, therefore, was assessed based on the perspectives of the reserve staff and officials from BLF, while the voices of local communities were absent due to time limit for the research. However, the other two dimensions of data collection methods - document analysis and direct observation - can at least partly address these limitations.

CHAPTER 3: LEGISLATION AND ORGANIZATION OF PROTECTED AREAS IN CHINA

This chapter addresses one of the research objectives: to assess the legislation, regulations, and administrative structures of the management of XBR. The chapter describes the legislative frameworks and administrative structures for reserve management through the following elements. First, Section 3.1 situates XBR in China's PA system and the network of one category of PAs - nature reserves. Some limitations inherent in the PA scheme and the network of nature reserves are also illustrated to shed light on the issues facing the management of XBR. Second, Section 3.2 presents the legislative context for the management of XBR. Third, Sections 3.3 and 3.4 clarify the roles of different organizations responsible for reserve management, and describe organizational roles and dynamics of the current reserve management organization - the XBR Management Bureau, along with the major issues the organization is facing. Thus, the organization, acting as the major role in the management of XBR, is analyzed in terms of its organizational roles, dynamics, and issues.

3.1 China's system of protected areas

China maintains a system of PAs different from many other nations. Rather than adopting the PA categories defined in the IUCN (World Conservation

Union) system which is based on the primary management objectives of different categories of PAs, the Chinese system utilizes six primary categories of PAs listed in Table 5. Over 2000 sites have so far been designated as PAs (Ouyang 2000). Moreover, along with the country's increasing participation in the global conservation community, China has included the category of biosphere reserves into its network of PAs[8]. In addition, China has its own Biosphere Reserve Network into which 93 nature reserves have been accepted, with 26 of them having been internationally recognized and included into the UNESCO's biosphere reserve network.

Table 5: China's system of protected areas

Category	Description	Permitted Uses
Nature Reserves	Land with representative natural ecosystems, rare plant and animal species, and natural monuments.	Scientific research, tourism, visit, and ecological restoration.
Forest Parks	Forests ecosystems and their landscapes.	Recreation and tourism.
Scenic Areas	Land with sightseeing, cultural, or scientific values, and with scenic natural and human landscapes.	Recreation, tourism, and projects related to scientific research and cultural activities.
Protected Forestry Areas for Traditional Culture	Forests ecosystems with particular cultural significance.	
Protected Areas for Natural Forests	Forests ecosystems focused on the ecological functions of forests.	
Biosphere Reserves*	Same as Nature Reserves.	Same as Nature Reserves.

Adapted from Ouyang (2000: 27) *China's biosphere reserves are based on the existing nature reserves which have been accepted into the international Man and the Biosphere (MAB) network or the Chinese Biosphere Reserve Network. The description and permitted uses of these biosphere reserves, therefore, are the same as those for the category of nature reserves.

[8] Although there exist disputes concerning whether biosphere reserves should be included into the categories of PAs, this study is consistent with the World Conservation Union (IUCN) that views biosphere reserves as a category of PAs (Price 1996).

Such a system of PAs, however, is far from clearly defined in terms of the functions and properties of different kinds of PAs, as well as land uses and activities permitted within their boundaries (Ouyang 2000). In addition, there is no holistic planning and management strategy for PAs in the country. This ambiguity concerning the definition of PA categories, in turn, results in the dilemmas facing the establishment and management of these PAs on the ground.

In practice, the boundary of one category of PAs may overlap with that in another category, which gives rise to land uses and management defined by one category of PAs contradicting those prescribed by the other. For instance, in some cases, within a nature reserve, a forest park or a scenic area is established. Compared to the nature reserve, the forest park and scenic area focus more on providing recreational services than on conserving natural habitats and species. Therefore, with the lack of well clarified schemes for the management of nature reserves, the recreation roles of forest parks or scenic areas are often prioritized and the conservation functions of nature reserves compromised (Ouyang 2000). For example, within the core zones of some of these nature reserves, tourist activities are carried out in spite of how important these areas are for biodiversity preservation. In addition, the existence of a forest park or a scenic area within the boundary of a nature reserve may also exert negative impacts on the designation of functional zones for the nature reserve. In some cases, the core zones of the nature reserve have to give way to the forest park or scenic area and, as a result, are unable to cover all the areas where strict protection is required and almost all forms of human activities should be prohibited (Ouyang 2000).

China's network of nature reserves

Within China's system of PAs, nature reserves are the most important because they comprise the largest number and occupy the largest total area of all protected sites in the country. Furthermore, compared to other categories of PAs, they also require more attention to biodiversity conservation. China's network of nature reserves began with the establishment of Dinghushan Nature Reserve in 1956. The number of nature reserves has expanded dramatically since the 1980s. It had increased from 34 in 1978 to 1227 in 2000, growing from 0.13% to around 10% of the country's land area, respectively.

The network of nature reserves has three dimensions (Figure 5). First, it utilizes three categories, which include Natural Ecosystem Reserves, Wildlife Reserves, and Natural Monument Reserves, based on the property of certain species or habitats which the reserves aim to protect. Second, China's nature reserves are divided into four levels - national, provincial, city, and county levels - according to the degree of importance of the species or habitats the reserves are trying to conserve (Ouyang 2000). Finally, there are several central ministries (refer to Figure 5) responsible for the management of nature reserves. Theoretically, any one of the nature reserves has a defined central ministry charged with its establishment and management. At the same time, any one of the nature reserves belongs to one of the three categories based on its habitats and species, and one of the four geographic levels according to its degree of significance for conservation. This network, however, is far from effective and efficient in practice.

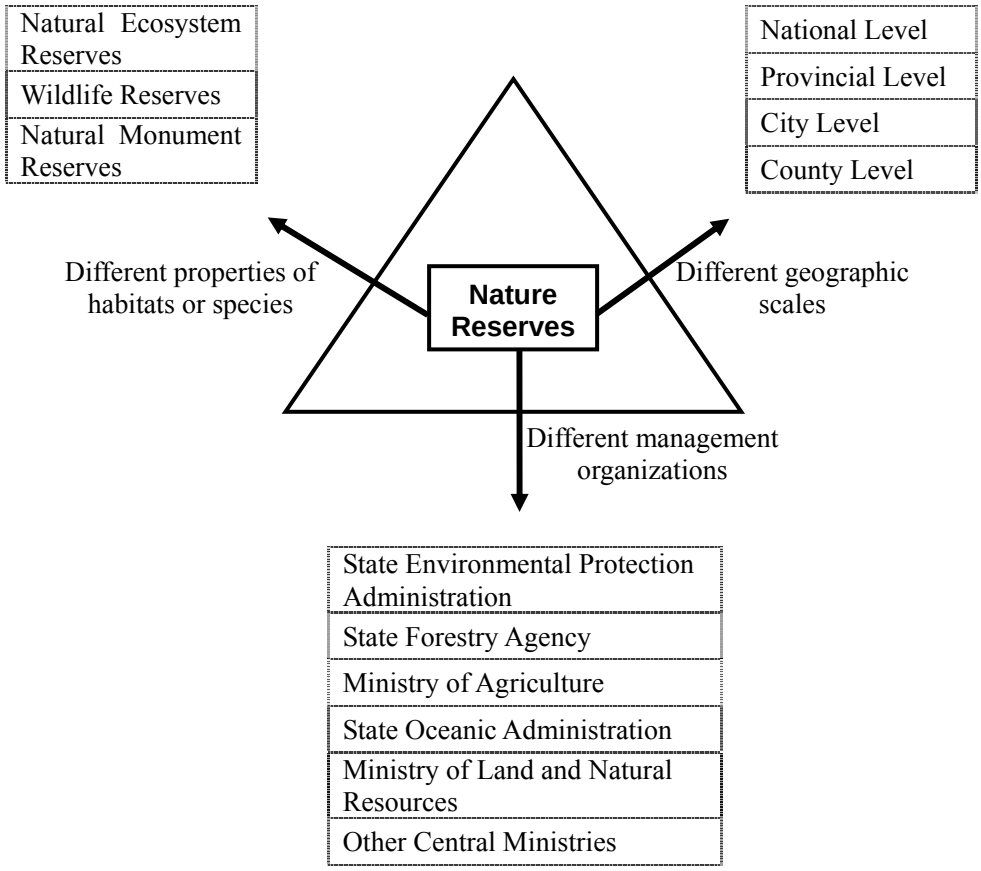

Figure 5: China's network of nature reserves

One drawback of this network is the lack of clearly defined roles of the central ministries in establishing and managing nature reserves. In the *Nature Reserve Regulation* (China, State Council 1994), it is stated that while the State Environmental Protection Administration is responsible for the comprehensive management of all nature reserves in China, other central ministries take charge of nature reserves in their own jurisdictions[9]. For example, until 1997, the State Forestry Agency had been charged with the management of 584 nature reserves with forests ecosystems as their primary landscapes (Ouyang 2000). Moreover,

[9] In this regard, XBR is *de jure* under the jurisdiction of the State Environmental Protection Administration. In other words, the State Environmental Protection Administration is *de jure* responsible for the establishment and management of XBR.

concerning the establishment and management of nature reserves, the communication and coordination among these management departments, all of which are under the administration of the State Council, are very limited. Without a holistic planning strategy for either the establishment or management of nature reserves in China, these departments often establish nature reserves and other types of PAs within their own jurisdictions without communication with one another (Ouyang 2000). As a consequence, sometimes a nature reserve is at the same time under the jurisdiction of two or more central ministries.

Furthermore, with the trend toward greater autonomy for regional and local governments in China, the management responsibilities and authority for most of the nature reserves are in reality decentralized to provincial or city governments and their line agencies. For instance, it is declared in the *Nature Reserve Regulation* that a national level nature reserve should be managed either by the relevant agency/agencies of the provincial government whose territory encompasses the reserve, or by the central ministry/ministries taking charge of the management of the reserve. Further, for provincial, city, and county level nature reserves, the regulation declares that the relevant agencies of provincial or city governments whose jurisdictions cover the reserves are entitled to manage these nature reserves. In practice, while there is a limited number of national level nature reserves under the direct management of the central ministries, most nature reserves are administrated by provincial or city governments and their agencies, with the central departments *de jure* responsible for these reserves in reality dealing little with their

management. Taking XBR as an example, it is the Xilingol League[10] government and its relevant agencies that are taking charge of this national level nature reserve.

To make this network of nature reserves effective and efficient, a holistic planning and management strategy is required. This strategy can help clarify the categories of nature reserves and can facilitate the coordination among the central ministries. Additionally, the holistic strategy can provide a general guidance for the establishment and management of nature reserves. General guidance for nature reserves is important for defining the characteristics of and land uses in nature reserves. It can, in turn, help clarify issues facing the management of these reserves. In addition, the improvement of the efficiency of the network of nature reserves depends on finding a way to improve both the function of the network and the management of nature reserves using relatively less capital and manpower input. In other words, nature reserves are conserved and managed with relatively low costs. And the network of nature reserves can perform its functions with relatively low input.

3.2 Legislation and regulations

China's environmental legislation started with the emergence of the *Environmental Protection Law* in 1979. Since then, a series of laws and regulations for environmental protection and natural resource management have come into effect. Regarding the regulations in relation to nature reserves, China's network of nature reserves is defined in the *Principle for Categories and Grades of Nature*

[10] As is referred to above, a league is equal to a prefecture in terms of administrative levels. So in reality, XBR is under the administration of the regional government (i.e., the Xilingol League government) and its agencies instead of the central ministry (i.e., the State Environmental Protection Administration).

Reserves passed in 1993 and enacted in 1994 (China, State Environmental Protection Administration and State Technological Supervision Agency 1993) as well as the *Nature Reserve Regulation*. Additionally, the legislation directly related to nature reserves includes the *Nature Reserve Regulation*, a *Land Management Rule for Nature Reserves*, and a *Regulation for Forest and Wildlife Reserves*.

The *Land Management Rule for Nature Reserves* declares that the land within nature reserves is state or collectively owned, and that land use permits are required for land users in these reserves (China, Ministry of Land and Natural Resources and State Environmental Protection Administration 1995). The *Regulation for Forest and Wildlife Reserves* focuses on the protection of forest ecosystems and rare species of plants and animals (China, State Forestry Agency 1985). The *Nature Reserve Regulation* was issued by the State Council in 1994 and is discussed below in greater detail.

Besides the roles of the relevant central ministries, regional governments and their line agencies in the management of nature reserves, which are mentioned in Section 3.1, the regulation also declares that in nature reserves, the functional areas of the core, buffer, and experimental zones can be delineated[11]. Typically, in the core areas, human interventions are strictly forbidden. Almost all forms of human activities are also prohibited in the buffer zones except for scientific research. Outside the buffer zones are experimental areas where numerous

[11] In this regard, XBR is basically consistent with the International Biosphere Reserve Network in terms of the division of functional zones. As is referred to above, the functional areas in XBR include the core, buffer, transition, and experimental zones. Therefore, compared to the functional areas defined by the MAB world network (see Section 1.1), XBR also incorporates the experimental zone into its functional areas. However, the functions and permitted land uses of experimental zones in XBR are different from those defined for nature reserves in the *Nature Reserve Regulation.* In this regard, the experimental zone defined in the *Nature Reserve Regulation* is similar to the transition zone clarified in the MAB world network in terms of its functions and permitted land uses and activities. In contrast, XBR's experimental zones are focused on field research and demonstration functions, and are always fenced areas in which limited forms of human activities are allowed.

activities for research and recreation are permitted. Based on the regulation, many nature reserves have been divided into the three types of functional zones. However, the actual land uses and activities implemented in these functional areas are sometimes far beyond what are defined in the regulation. For example, while in theory the core areas should be strictly protected, in reality tourist activities have been carried out in the core zones of many nature reserves in China.

Moreover, it is declared in the regulation that for each nature reserve, the special management organization should be founded to take charge of the reserve's day-to-day operations. The primary responsibilities of these organizations include providing assistance to research activities conducted by external individuals or groups, carrying out dissemination and education programs about the nature reserve, implementing environmental monitoring in the reserve, organizing tourism activities and other kinds of recreation programs, and designing management plans for the reserve, etc. In addition, the regulation also requires that reserve management organizations incorporate their management plans into the funding and budgetary plans of governments and their agencies. These organizations, the regulation claims, should also be responsible for the enforcement of these management plans. Finally, none of the abovementioned legislation refers to, let alone declares to justify, or requires, local participation.

Generally speaking, in China, the laws and regulations for environmental and natural resource protection do not make their standards explicit. Moreover, the lack of a comprehensive enforcement mechanism for legislation and regulations, along with a low priority put on environmental protection compared to economic

development around the country, makes their implementation problematic on the ground (Environmental Policymaking in China. 1998). This is the case for the *Nature Reserve Regulation,* which, as the main legislation for nature reserve management in China, is more descriptive than prescriptive. In particular, the rules about land uses and other activities within nature reserves are not clearly specified, and thus the specific guidance for reserve management is absent. The lack of an effective legislative framework for managing nature reserves partly leads to the dilemmas faced by practitioners of reserve management when fulfilling their conservation and management roles.

3.3 Organizational roles and structures

3.3.1 Organizational changes

The past two decades have witnessed a shift in the organizations that take charge of the management of XBR. An alliance emerged and was then dissolved, a range of government bureaucracies were involved and expelled, and the organization created specifically for the reserve's management had its ups and downs. In general, the history of the management organizations for XBR can be divided into three major periods: from reserve establishment to 1994, from 1994 to 1999, and from 1999 until present (Figure 6).

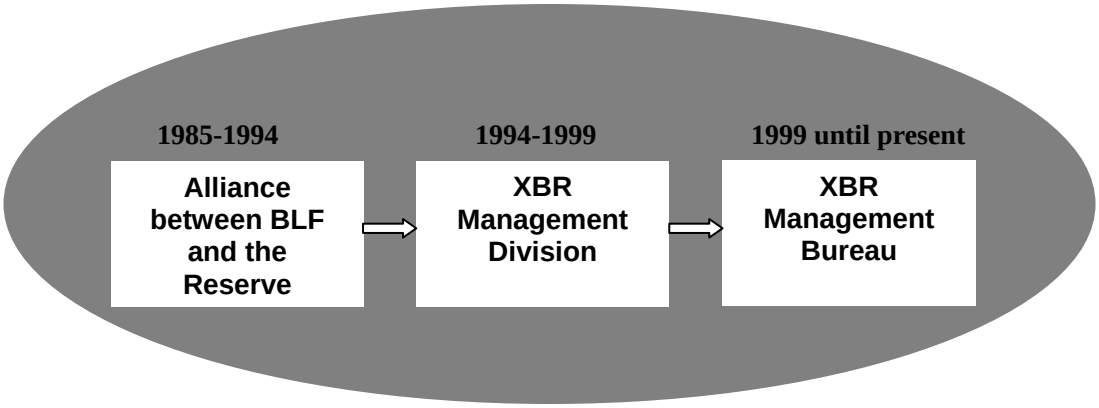

Figure 6: The history of the major organizational changes in Xilingol Biosphere Reserve (Adapted from Han et al. 2002: 80, 82)

From the establishment of the reserve until now, BLF[12] has continued to play a critical role in the management of XBR. While the reserve was designated in 1985, the independent organization specifically committed to reserve management did not emerge until 1994. During the period from 1985 to 1994, it was BLF that was responsible for implementing conservation and management activities in the reserve, with the Inner Mongolia Construction Bureau and the Inner Mongolia Animal Husbandry Bureau in charge of supervising reserve management. During this period, BLF also provided considerable human and financial resources for natural resource management in XBR.

Between the reserve establishment and 1994, an alliance was formed between the reserve and BLF, with the director of the Production Division of BLF at the same time serving as the head of the alliance. Two full-time staff worked for the alliance. BLF also appointed a group of people to take charge of fencing and patrolling around the core areas (Han et al. 2002). Additionally, the alliance was responsible for the coordination and communication with people both within and

[12] BLF is a state-owned farm where most of XBR's core and buffer zones are situated (refer to Section 1.3 for greater detail).

outside of XBR. For example, it provided assistance for research activities conducted by some domestic and international scholars in the reserve. During the period of its existence, the alliance even added two vehicles and built a house to facilitate its day-to-day operations (Han et al. 2002). Apart from some financial support coming from governments, BLF afforded part of the funding for reserve management.

Furthermore, compared to the reserve, BLF has a longer history in this area, given its foundation in 1950. The relatively longer presence of BLF in the region, in part, laid the groundwork for its predominant presence and important role in managing the reserve. Moreover, as is referred to above, most of the core and buffer zones of XBR are situated within the jurisdiction of BLF. BLF, therefore, is an important stakeholder in XBR and thus should be involved in reserve management. The alliance existing from 1985 to 1994 established a collaborative relationship between BLF and the reserve. Unfortunately, it was disbanded in 1994 when a new organization, the XBR Management Division, emerged. The dissolution of the alliance was accompanied by the end of the positive relationships between BLF and the reserve, which had existed for about a decade; it also partly laid the foundation for the conflicts between the two entities.

In early 1994, to establish a management organization specifically responsible for the management of XBR, the XBR Management Division was founded under the decree of the Xilingol League government. It served as a public enterprise (*shiye danwei*). At this time, it was the Xilingol League Environmental Protection Bureau of the Urban and Rural Construction that acted as the main

government agency for the management of XBR; it took the watchdog role over the performance of the Management Division to ensure that the reserve was under appropriate management and conservation. Compared to the alliance, the Management Division was a more independent organization in that it consisted of eight full-time staff members and had financial autonomy. Hence, instead of significantly depending on BLF for reserve management, the management responsibilities for XBR were mostly transferred to a special organization - the Management Division.

Nonetheless, the establishment of an independent organization specifically responsible for reserve management was not accompanied by the provision of a secure funding channel to support the Management Division's conservation and management activities. When the Management Division was initially set up, it was declared that the organization would receive the funding of RMB 15,000 *yuan* per year from the Xilingol League government (Han et al. 2002). Nevertheless, these annual funds, which for the Management Division meant a form of steady financial support, were never put in practice, although the organization received some funding from the Xilingol League government and its agencies on an occasional basis (Han et al. 2002). As a result, the organization was basically self-reliant and self-developed, much like the operation of a profit-seeking enterprise.

After that, in 1999, organizational changes occurred again. Under the directive from the Xilingol League government, the Management Division was replaced by the XBR Management Bureau (MB). The XBR Management Bureau will henceforth be referred to as the MB. Since in China, "bureau" represents a

higher bureaucratic rank than "division," this organizational change may have corresponded to the upgrade of the Xilingol Nature Reserve from the provincial level to the national level in 1997. Apart from its new name, the organization has also experienced a transformation in its organizational roles and structures.

3.3.2 Organizational roles and structures of the Management Bureau

The current MB is still in transition, struggling to build up organizational structures, skills, human and financial resources, and collaborative relationships with other groups necessary to make a commitment to manage the reserve. The organizational responsibilities for the MB are specified in the *Nature Reserve Regulation* and the *Regulation on Xilingol National Grassland Nature Reserve* (Inner Mongolia, the National People's Congress 2001). The latter will henceforth be referred to as the *XBR Regulation*. According to these two regulations, the primary roles for the MB include:

- Design the management plans for conservation and management of XBR;
- Incorporate the management plans into the funding plans of governments and their agencies, and implement the management plans;
- Maintain and improve the conservation facilities and infrastructures in the reserve;
- Implement ecological monitoring in the reserve;
- Conserve natural resources and natural ecosystems within the reserve;
- Coordinate or organize scientific research conducted by other

organizations in the reserve;

- Carry out education programs and disseminate information about the reserve;
- Organize visiting and tourism activities having no negative impacts on the natural environment within the reserve.

Today, the Xilingol League Environmental Protection Bureau takes the role of direct leader of the MB. It thus becomes the most important government agency directly responsible for managing XBR. Such a "watchdog role" of XBR is attractive for some government agencies because of the potential benefits the reserve may bring to them. More specifically, the Xilingol League Forestry Bureau and Environmental Protection Bureau have strived for the watchdog role over the XBR. Primary responsibilities for reserve administration were transferred in 2002 to the Forestry Bureau from the Environmental Protection Bureau. In 2004, the Environmental Protection Bureau again gained the watchdog role on reserve administration. From respondents' perspectives, XBR can serve as an instrument for these agencies to apply for funding from central and regional authorities, and it thus becomes the "focus" of these agencies.

Moreover, the MB now encompasses 19 full-time staff distributed in six units (Table 6). Except for the research and monitoring station, all other units are located in Xilinhot Municipality. Instead of being elected democratically, the director of the MB was appointed by the "upper level," just as most of the administrative departments (*xingzheng jiguan*) or public enterprises (*shiye danwei*) in China. Moreover, the MB consists of four "formal" personnel who were assigned

to the organization after graduating from colleges and whose salaries are provided by the payroll of the Xilingol League government.

Table 6: Organizational structure of the Management Bureau

Unit	Administration and Logistic Office	Resource Management Office	Dissemination and Education Office	Accountant Office	Police Station	Research and Monitoring Station
Staff Number	4 (Including the Director of the MB)	2	2	2	4	5

Apart from the four "formal" staff, all other members of the MB serve as daily employees. These members do not have a higher education. Yet training opportunities are scarce in the organization partly because of the MB's limited access to manpower training resources. More specifically, XBR is located in a relatively impoverished and remote region where the geographical isolation makes information and other important resources difficult to attain. While in some reserves in China, international or domestic NGOs play a critical role in providing technical training, information, and other support to reserve practitioners, no NGOs have been thus far active in XBR. Further, the organizational property of the MB also gives rise to its lack of training opportunities. As a government-established public enterprise (*shiye danwei*), the motivations within the reserve staff for improving their technical skills are relatively limited in comparison with many civic initiated environmental NGOs in China which are typically active in seeking resources for capacity building.

3.4 A basic organizational issue - Lack of funding

3.4.1 Financial sources of the Management Bureau

Just as most nature reserves in China, XBR also suffers from the problem of insecure and insufficient funding. Most of nature reserves in China are funded from the central and local budgets, with a small number of reserves at the same time receiving part of their funds from multilateral and bilateral aid agencies, or international environmental NGOs (Xu 2000). On the other hand, many demands are made on these central and local funds, whereas nature reserves are seldom seen as an equal priority with many other sectors. When in most cases in China, more attention is focused on economic development than on environmental protection, for nature reserves "the link with economic development is seen as too remote, (and) the diversion of other program funds is seen as too expensive in the short term" (McNeely 1995: 4). The reserves, therefore, are achieving declining shares of the national and local fiscal resources. In addition, the dramatic growth in the number of China's nature reserves since the 1980s makes such circumstances even worse.

Furthermore, governments from central to local levels have no formal budgetary channel for nature reserves. With the trend of fiscal decentralization with regard to China's environmental protection programs, local governments have to take on the growing fiscal burden for nature reserves (Harkness 1998). While the central ministries provide part of funding for a small number of national level nature reserves, most of the reserves have to rely on financial support from regional and local governments. Not surprisingly, the funding from these regional and local governments is often far short of the money required to meet the basic management needs in these reserves. The reserve officials, therefore, have to limit their attention

and activities based on the availability of financial support. For example, reserve managers may sometimes focus their limited funds on patrolling the reserve, while other important roles such as environmental monitoring and coordination with local communities have to be put in suspension.

This financial dilemma is even worse in XBR partly because the reserve is situated in a relatively poor region of the country[13]. Table 7 shows the financial assistance XBR had received from regional and local governments during the 16 years between 1985 and 2001. Compared to the input from the reserve's own income-generating activities which accounts for some 34% of total input, the money from regional and local governments accounts for a larger percent (about 66%) of XBR's total input. Han et al. (2002) pointed out that between 1985 and 2001, the annual input per square kilometer in XBR, which is RMB 19.7 *yuan* or US$ 2.46, is about one-twentieth of the average annual input per square kilometer for all nature reserves in China, or one-fortieth of the average annual input per square kilometer for all national level nature reserves. Additionally, XBR has not received any financial support from either international organizations or domestic NGOs.

[13] According to Xu (2000), the total amount of government funding for a nature reserve in China partly depends on the region where the reserve is located; reserves situated in economically developed provinces or cities tend to be better funded than their counterparts in relatively poor regions. This is understandable because most of the government funding for nature reserves comes from local governments at provincial, city, to county levels. "Richer governments" are more capable of providing financial support to conversation activities in their territories than the "poorer ones".

Table 7: Input of Xilingol Biosphere Reserve from 1985 to 2001

(**Unit: RMB 10,000 *yuan***)

Funding Sources	Infrastructure construction	Staff salaries	Core area maintenance	Research and monitoring	Other operational fees	Non-management expenses	Total
Government funding	110	15	40	10	31	20	226.00
Reserve's income-generating activities		62.6	51.26		9		113.86
Total	110	77.6	91.26	10	40	20	339.86

Source: Han et al. 2002: 75.

As illustrated in Table 7, other than government funding, the MB also relies on its own profit-generating activities to meet its basic operating costs. To understand the motivations and approaches for the reserve staff of XBR to engage themselves in income-generating activities, it is important to have a basic appreciation of the circumstances of nature reserves around the country. Almost all reserve administrations in China have to at least in part financially support themselves to bridge the gap between the funding provided by governments and the operational costs of these organizations. Without regular funds from governments, reserve managers are urged by central authorities to make the reserves self-supporting by diversifying their funding sources, most often by exploiting the natural resources within these reserves while not compromising the reserves' conservation functions (Harkness 1998). However, there exist no well-defined guidelines for these reserve administrations concerning what commercial activities are permitted, what resources might be used, and to what extent might these resources be exploited, if the conservation functions of the reserves are to be prioritized (Han 2000; Harkness 1998).

Under such circumstances, the reserve staff often place more efforts on exploiting than conserving natural resources within the reserves, in spite of their primary conservation responsibilities. In this regard, the most significant source of self-generated income for nature reserves is tourism development, which has taken place in most reserves. Additionally, as reserve management administrations are vested with the rights to authorize who can operate tourist services in the reserves, outside practitioners are often excluded from the tourist business which, in turn, may be under the monopoly of reserve authorities (Li and Han 2001). In sum, almost all reserve administrations have participated to some degree in tourism development in nature reserves in China.

Furthermore, the direct involvement of reserve authorities in tourism operations within nature reserves has certain negative effects on reserve management. This is understandable given the fact that tourist activities, once poorly managed, often threaten the natural environment, and that the primary role of reserve authorities - ecological conservation - can be weakened by their direct engagement in tourist services. More specifically, as it is the reserve management administration that decides what tourism activities are implemented in the reserve, and it is the same organization that carries out these activities, it tends to over-exploit the resources in the reserve, while an effective regime is absent to restrict the organization to reasonable use of the resources (Li 2000). In addition, the monopoly of reserve administrations in tourism markets within nature reserves may also lead to opposition against reserve managers from other groups who want to share benefits through involvement in tourism operations in the reserves (Li and

Han 2001).

In these circumstances, the MB of XBR also struggles to meet its financial needs by undertaking income-generating activities, a large part of which are related to tourist services. However, tourism is not very profitable for this area, when compared to many other reserves especially those situated in south China. This is because compared to many other reserves, the scenic beauty in XBR is not so attractive to, and thus it is not a popular destination for, both domestic and international tourists.

Since its establishment, the MB has mainly self-operated a demonstration pasture, the Daziran Hotel (where the MB sets up its offices on the top floor and uses other three floors as the hotel), a restaurant, and an ecotourism service center. However, except the ecotourism service center, these businesses have all ended in failure because of ineffective management (Han et al. 2002). Now the Daziran Hotel and the restaurant have been contracted to outsiders, for which the MB can get some money each year in return for renting out these tourist facilities. The demonstration pasture has disappeared along with the withdrawal of the pasture's land rights.

The ecotourism service center was founded in 1993. It is located at the bank of Zakstai Lake, an important sight-seeing location in XBR. Within the center, the MB has set up several guesthouses, an interpretive room, a research and monitoring station (one of the six units of the MB), and other tourist facilities. The interpretive room acts as the major site for education and dissemination of information about the biosphere reserve and biodiversity conservation in XBR. It also demonstrates or

provides posters, photos, and brochures about XBR, as well as samples of plants and animals found in the reserve, to tourists and visitors. The five members from the MB's research and monitoring station are currently responsible for the operation of the ecotourism service center, with the income from tourist reception covering a part of the MB's operating costs.

3.4.2 The consequences of the lack of funding on the Management Bureau

Five out of nine respondents from the MB agreed that inadequate funding is one of the major challenges for the MB. One respondent claimed:

> Anyway, our reserve (the Management Bureau) has been assiduously engaged in our work in recent years. A set of facilities has been built…The core areas have been fenced. The roads and parking lots have been maintained…The major issue we face is the lack of funding. The country requires us to implement conservation [activities] but does not provide large financial input…The country just calls on conservation without providing funding. Nothing can be done without money. (A member from the MB)

In general, respondents identified several consequences of lack of funding on XBR and the MB, which are illustrated in Figure 7.

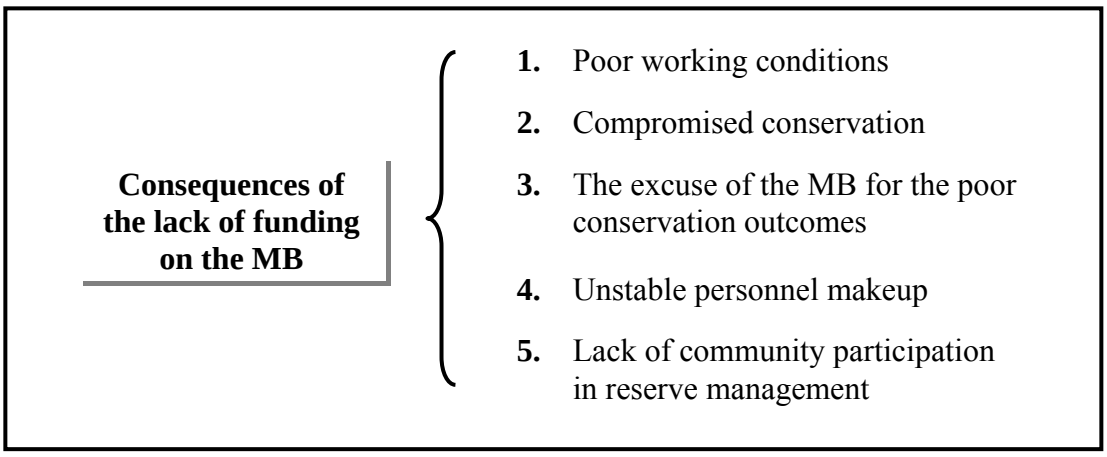

Figure 7: Consequences of the lack of funding on the Management Bureau

Firstly, the working conditions for the reserve staff are very poor. The currently available facilities, which primarily include a computer, a fax machine, and a vehicle (State Forestry Agency et al. 2003), are insufficient for the MB to perform its organizational functions. The organization still has no Internet access, which proves to be one of the main barriers for the organization to gain access to information and other important external resources. In its most updated Management Plan (State Forestry Agency et al. 2003), the MB attempted to add more office facilities to its budget. At this point, the MB cooperated with the Xilingol League Forestry Bureau and the Xilingol League Environmental Protection Bureau, as well as the State Forestry Agency to design this 2003 Management Plan for XBR. According to the plan, the total funds required are RMB 73,200,000 *yuan* (State Forestry Agency et al. 2003). This is a remarkable figure, given the fact that the government funding during the recent 16 years totals only RMB 2,260,000 *yuan* (refer to Table 7). The MB and the relevant government agencies are currently awaiting agreement on the plan from "upper level" governments or agencies. Some respondents from the MB expressed an expectation of a large amount of funding that is associated with the approval of the Management Plan.

Secondly, insufficient funding also gives rise to a contradiction: the MB, as the organization responsible for conservation in XBR, financially supports itself using the same natural resources which it is obliged to protect. Such contradiction exerts great impacts on biodiversity preservation. More specifically, lack of funding makes the reserve staff engage in the efforts of procuring funding from

governments or the direct involvement in money-making operations. As a consequence, the conservation functions of the MB are often compromised. For example, one of the primary roles of the director of the MB is fundraising which has cost him a large amount of time and energy. Using one respondent's words: "He (the director of the MB) is very busy. As the only leader of our bureau, he is often engaged in applying for projects from the 'upper levels'" (A member from the MB). In addition, the MB's direct involvement in profit-generating activities has also made worse the already scarce human resources for conservation actions. Further, as the management plan is one of the main ways by which to apply for government funding for XBR, some reserve staff have made great efforts to design management plans rather than to implement conservation programs. When the plan is not approved by governments or their agencies, its enforcement becomes a future action. However, conservation and management of XBR remain the MB's responsibilities and day-to-day conservation activities its major roles.

Thirdly, the conservation activities of the MB have been focused on fencing, patrolling, and maintaining the core areas, as well as a small number of education and dissemination programs in XBR, while many other responsibilities of the MB such as coordinating with local communities are seldom implemented. According to interviewees, projects that the MB has initiated in XBR are very scarce. A respondent claimed, "The projects are too limited" (A member from the MB). More specifically, according to respondents, these projects mainly include the maintenance of facilities in the reserve, fencing and patrolling around the core zones, the distribution of pamphlets on XBR and biodiversity conservation, and

visiting local inhabitants. Respondents from the MB regarded lack of funding as the principle barrier for them to conduct conservation activities. During the interviews, respondents often complained of different kinds of difficulties in their work caused by inadequate funding. As one interviewee said, "The projects implemented [by the MB] are extremely scarce because of the currently limited funding. Whatever activities we want to carry out we have to get financial support first" (A member from the MB). At this point, I regard lack of funding sources, at least to some extent, as the excuse of the reserve management members for their not so remarkable conservation performance in XBR, which is illustrated by the limited number and limited scope of the projects which the MB has implemented and the not so favorable conservation outcomes in the reserve.

Fourthly, all members from the MB are either employed by the organization, or assigned to the MB through the system of job allocation in China. In addition, no volunteers have so far been involved in the organization. As a consequence, unlike many park managers in some other countries who engage in conservation activities based on a personal commitment to ecological protection (Harkness 1998), few of the staff in the MB have such personal motivations for conservation. The poor working conditions and the poor salary make working for the MB an unattractive opportunity. This is particularly the case for the five members from the MB's research and monitoring station. As is referred to above, the station is located at the MB's ecotourism service center, which is 52 km from Xilinhot Municipality. The families of the five staff from the research and monitoring station live in the municipality. In winter, the five people take turns working at the station for 10 days

and then staying at home for 20 days a month. And at other times during the year, they go to the municipality to have a together with their families once half a month. Moreover, the living conditions in the research and monitoring station are quite hard. For example, the five people have to go to the municipality to get food and other living necessities. The station has only one room, where all furniture includes a table and several beds, for them to live. Life is even harder in winter days as heating conditions are not so good. In sum, as working for the MB is not viewed by some of the reserve staff as a promising job opportunity, they often choose to change jobs. For instance, from what I have learned, two previous staff from the MB have jumped to the Xilingol League Environmental Protection Bureau; for them this means a job promotion and thus a more promising future for their careers and lives.

Finally, from the perspectives of interviewees, lack of funding in part leads to the limited participation of local communities in reserve conservation and management. Some respondents perceived that if they had more money, they could help improve the living standard of local people through approaches such as ecological migration[14]. Further, they suggested that local residents are willing to participate in conservation activities only when their living or economic plights are resolved:

> If possible, the living standard of local residents should be promoted. If their standard of living is poor, for example, if their food is scarce and their livelihood issues are still unresolved, for them conservation is nothing. As the result, their participation is very limited. When their livelihood is improved, their

[14] "Ecological migration" is a program initiated by the Xilingol League government. The program is aimed at resettling residents around the core areas of nature reserves in order to improve the conservation of these areas. There exist converse viewpoints among respondents about whether the resettlement program can improve the living standards of local communities. The program is described in greater detail in Section 4.3.2.

> enthusiasm to participate in environmental or ecological protection will increase. (A member from the MB)

These comments on the relationships between the degree of abundance of funding and local participation are at least partly true. For locals, only when the reserve management activities can provide them some benefits are they willing to participate in such programs or activities. This is particularly the case when local people have a low standard of living. Adequate funding for XBR, in turn, can bring about more opportunities to benefit locals, with conservation objectives simultaneously being met.

CHAPTER 4: LAND USE ISSUES AND PEOPLE-PARK CONFLICTS

It is impossible to separate land rights and resource use in XBR from the context of land tenure regimes and the current rangeland conditions in China. The economic reforms initiated by the central government in the late 1970s gave rise to overstocking and then increasing degradation in China's grassland regions (Ho 2000). XBR, as with other parts of the country's rangelands, is subject to these threats. On the other hand, XBR has unique resource management practices and land rights regimes among China's grassland areas in so far as it serves as a reserve.

This chapter aims at addressing one of the research objectives - to assess the responsibilities associated with land and resource rights - through the examination of resource use and land rights in XBR in the context of land and resource rights as well as the rangeland conditions in the whole country. The chapter includes the following sections: Section 4.1 describes the nature of grassland degradation in China and particularly in XBR, as well as its potential resolutions; Section 4.2 presents land and resource rights in XBR in the Chinese context of pastoral land tenure. Finally, land use conflicts between major actors in XBR are examined in Section 4.3, followed by the recommendations of potential resolutions to people-park conflicts in XBR in Section 4.4.

4.1 Grassland degradation

The grasslands in the north and northwest of China are confronted with the crisis of accelerating degradation. It is reported that about 90% of the country's grasslands[15] have been degraded to some degree (State Environmental Protection Administration 1998). While it is widely appreciated that the deterioration of grasslands cannot be assigned to a single factor and the reasons are multifaceted, policymakers and researchers are in basic unanimity that the declining rangeland health has occurred primarily due to overgrazing. Further, the economic reforms initiated in the late 1970s, and the Household Responsibility System which accompanied the initial reforms, are viewed as the key causes for overstocking in the country's pastoral regions.

The economic reforms were introduced by the Chinese government in the late 1970s. The reforms brought about a major shift toward a market-oriented economy and away from the centrally planned economy prevalent during the Maoist era (between 1949 and 1978). For pastoral sectors, the reform policy implied a liberalized marketing system for livestock products. In addition, the economic booms occurring after the reforms gave rise to an ever-growing domestic market and thus for pastoral sectors an increasing national demand for livestock products. Therefore, along with the substantial expansion of commercial livestock production, overgrazing increased after the economic reforms. The overexpansion of the livestock industry, in turn, gave rise to grassland degradation.

To resolve or alleviate the crisis threatening China's rangelands, both

[15] The total area of grasslands in China accounts for about 40% of its territory (State Environmental Protection Administration 1998).

experts and officials in the country viewed reducing the number of livestock, among many other means, as a logical step toward decelerating or preventing grassland degradation. This is echoed in *the Law of the People's Republic of China on Prevention and Treatment of Desertification* (China, the National People's Congress 2001), a law taking effect in 2001 to control the worsening desertification in the country, in which it is declared:

> All levels of governments in grassland areas should take measures to prevent the degradation and desertification of grasslands in their jurisdictions by, among other approaches, controlling the number of livestock.

In response to the policies of controlling livestock numbers, two types of programs have been initiated by governments in grassland regions. The first set of programs aims to directly reduce the livestock population, sometimes by requiring herders to slaughter a potion of their herds based on the grasslands' carrying capacity. Such approaches, however, are difficult to implement given the evidence that herders are unwilling to reduce their herds which serve as both the major source of their livelihood and the primary indicator of their economic status (U.S. Embassy Beijing Environment, Science, Technology & Health Section 2001). Another set of programs is related to the indirect reduction of animal numbers - to reduce the number of people who are dependent upon animal husbandry for a living. These programs or activities correspond with the policy of "environmental migration of people" initiated by the Chinese government, in which people living in the regions with fragile ecological conditions are called on to be resettled to other places in order to alleviate the pressures on, and thus to regenerate, natural resources within these regions. The success of these programs depends, in good

part, upon the provision of alternative employment and livelihood to people who are reallocated.

Under such circumstances, the grasslands in XBR are also in a degraded condition. Han et al. (2002) pointed out that by 1999, over 80% of the grasslands in the reserve had been degraded to some degree, and that moderately and seriously degraded grasslands in 1999 had respectively increased 38% and 47% since 1985 when the reserve was established. This can be illustrated by a respondent's comments:

> When I came to this farm in 1987, herders were able to cut and attain grass within the circumference of 2.5 km. Hence, for a household which raised 30 to 40 sheep, it was able to get enough grass without the need to climb the hillsides. But now they have to buy grass from places 4 km or 5 km away…I have lived in this region for 17 years. During these 17 years, the number of households in this region has decreased from about 20 or 30 to some 10. Now, herders have to graze their animals as they cannot attain [enough] grass by cutting grass nearby. (A manager from BLF)

Recently, the conditions continue to get worse. Similar to other grassland regions in China, the growing population and expanding herd production have mainly resulted in the declining conditions of rangelands in XBR. The most serious grassland degradation in the reserve has taken place during the recent 50 years. In the case of BLF, it is reported that the farm's population in 2000 was 510 times of that in 1950 when BLF was founded, and that the number of livestock increased about 240 times during the same period (Han et al. 2002). Not surprisingly, widespread grassland degradation in the reserve has threatened the livelihood of local resource dependent communities as livestock farming provides them the principle source of income.

On the other hand, the establishment of XBR has not decelerated, let alone impeded, the process of grassland degradation which had taken place prior to the reserve designation. Although respondents perceived the reserve's foundation as bringing positive impacts in the form of landscape change, they often referred to the core areas which are being fenced. For instance, in the interviews, the most frequently mentioned favorable effect of XBR's establishment on the reserve's landscape was vegetation regeneration in the core areas. In reality, from the perspective of the whole landscape, the reserve has not experienced real favorable changes. A respondent said:

> We cannot say that the landscape has been getting better after the reserve was established. But the reserve can at least play a role in maintaining the original conditions of landscapes…The trend of the conditions of all the grasslands, whether in the Inner Mongolia Autonomous Region or in the Xilingol League, is… toward worsening. It is impossible that the grasslands [in XBR] are getting better than before. (A member from the MB)

In sum, the conservation outcomes of XBR are not so favorable. The existence of the reserve only has improved the ecological conditions of the five fenced core areas, which are situated in the reserve as five isolated islands. The establishment of the reserve has almost no impacts, either positive or negative, on the remaining landscape of the reserve. This is quite understandable given the current ecological context of all the grassland regions in China. On the other hand, the not-so-favorable conservation outcomes from the perspective of the whole reserve's landscape are also related to the fact that the reserve staff have over-focused on the management of the core, buffer, and experimental zones, which encompass a very limited area in XBR.

4.2 Land and resource tenure

The land tenure system for China's rangelands has received much attention from policy makers and researchers who are concerned with rangeland degradation. The uncertainty with regard to rangeland use rights contracts and the current rangeland tenure is viewed as the primary cause for overgrazing. This section situates the land and resource rights of XBR within the rangeland rights context, with reference to literature such as Banks (2001), Banks (2003), and Ho (2000) on land tenure in pastoral sectors in China.

Land tenure in China, especially the Household Responsibility System, is quite a complicated issue to explore. This is particularly the case for pastoral areas because: (1) the relevant literature is scarce, especially compared to that on land tenure in China's agricultural sectors; (2) there exist great inconsistencies between what the official documents or officials state and the *de facto* circumstances concerning rangeland rights, which results in, at least partly, distorted information from document analysis and what some respondents said. To address these difficulties, I examined land and resource rights in XBR within the context of rangeland rights in China through the reference of Banks (2001, 2003) and Ho (2000)'s work. While a large part of research on China's land tenure is focused on the country's agricultural sectors, Banks and Ho focused their research on rangeland rights in Xinjiang-Uygur and Ningxia Hui Autonomous Regions respectively. Unfortunately, no researchers have thus far paid particular attention to rangeland rights in Inner Mongolia Autonomous Region. Although an in-depth exploration of land tenure in Inner Mongolia is needed to contribute to the literature,

it is far beyond the scope and resources of this research.

In such circumstances, this section presents what the relevant literature states about rangeland tenure in China, and what can be learned about land and resource rights in XBR through document analysis and interviews. In addition, this section provides a description of land rights status in XBR in a most general sense and from the perspective of the whole reserve, rather than a detailed exploration of rangeland rights based on different regions within the reserve.

The Household Responsibility System (hereafter also referred to as the contract responsibility system, the household contract system or the contract system) was an innovative form of land tenure initiated in the late 1970s in China's agricultural sectors. After that, it was introduced in pastoral areas in the 1980s to replace the commune system under which the rangeland ownership was invested in the production team (the administrative unit below the commune[16]) (Ho 2000). Based on the new land tenure regime, the individual rancher family became the basic unit of production, with rangeland use rights being vested in the households. In other words, the rancher households were authorized to contract a patch of land and were allocated some previously communal livestock on the basis of their household size and labor force (Banks 2001). In most of the current cases, herders have been able to lease the use rights to rangelands for a period of thirty years, whereas the contract period, which has been subject to changes several times, was once as short as five years (Ho 2000). Such land use rights are inheritable and alienable but not saleable.

[16] Under the land reform policy introduced in the late 1950s, the commune and the production team, which are respectively equal to the current township and natural village in terms of administrative levels, were established. The commune regimes persisted during the Maoist period (between 1949 and1978) and were substituted by the Household Responsibility System in the 1980s in China's pastoral regions.

Under the pasture contract system, the income of ranchers was directly related to their total amount of products and their working efficiency, since they were entitled to keep the residual earning after they had met the production quotas and performed tax duties (Banks 2003). In contrast with people living under the commune system, the production incentives of herders under the contract system had been greatly enhanced and as a consequence, their production and income have rapidly increased since the 1980s (Banks 2003). The new property regime brought about much more freedom to herders in terms of land and natural resource management than people who had lived under the commune system. However, facing a wide range of opportunities and potentials for improving their standard of living, herders continuously expanded their livestock herds, which in turn exerted more and more pressure on grasslands in the long term.

The country's rangeland ownership and use rights are defined in *the Rangeland Law* (China, the National People's Congress 1985) passed in 1985. It "represents the official incorporation of the pasture contract system into law" (Ho 2000: 389). The law declares state or collective ownership of grasslands in China. In addition, it states that households and collectives are authorized to contract the use rights to grasslands to undertake animal husbandry, among other industries. Yet the contract period is not defined in the law. Moreover, as far as the rangeland ownership is concerned, it is ambiguous in defining the meanings of "collective" in *the Rangeland Law,* along with *the 1982 Constitution*[17] (China, the National People's Congress 1982); in the legislation, the term "collective" encompasses

[17] In *the 1982 Constitution*, it is declared that the land in the country are state or collectively owned, but the definition of the term "collective" is not clarified.

three levels of administrative units: the township, administrative village, and natural village[18] (Ho 2000). In reality, the collective ownership of rangelands can be vested in any of the three administrative units.

This can be illustrated by the case of XBR. Grasslands in the reserve are either state or collectively owned. More specifically, in the four livestock farms, the land is state owned; apart from the livestock farms and Xilinhot Municipality, rangelands are basically collectively owned with the land ownership vested in the townships or villages. The autonomous region's *de jure* pastoral tenure is defined in the *Regulation on Grassland Management in Inner Mongolia Autonomous Region* (Inner Mongolia, the National People's Congress 1984 and 1991) passed in 1984 and amended in 1991. In the regulation, it is stated that the rangelands and hayfields are owned by the state or the collective. Grassland ownership permits are issued to the collectives owning the land, while the units which are entitled with use rights to state owned grasslands are issued grassland use permits. In addition, grassland ownership and use rights are confirmed by these permits issued by league governments in Inner Mongolia. For example, BLF has been granted the use permits of grasslands under its jurisdiction, while the management organizations of XBR have struggled for a long time to gain the use rights and grassland use permits to the reserve's core areas from the hand of BLF (see Section 4.3.1 for greater detail). Moreover, the regulation also declares, in a somewhat vague way, that the units vested with grassland ownership should contract the grasslands to individual households or groups to use for a long term, and that the contract system is thus put

[18] The major administrative levels in China include the central level, province, city, county, township, administrative village, and natural village.

into effect, which incorporates the protection, use, management, and improvement of grasslands.

Furthermore, theoretically, the pasture contract system focuses on the individual use rights and using rangelands within their carrying capacity. Yet there exist great gaps or contradictions between the *de jure* pasture contract regimes and their practical implementation. First, the establishment of the household contract should be accompanied by the assignment of carrying capacities to the household pastures and the creation of sanctions to impede overstocking. An external agency, which is often the local Animal Husbandry Bureau, along with its associated range police forces, should be responsible for monitoring and enforcing the stocking rate of the pastures. However, in practice, such forms of carrying capacities have never been monitored or enforced either by the Animal Husbandry Bureaus or by pastoral groups and communities (Banks 2003).

Additionally, it is officially claimed that the household contract system has been in place in most of China's pastoral areas; for instance, according to the Inner Mongolia Animal Husbandry Bureau, use rights to about 79% of the total usable rangelands in Inner Mongolia had been contracted to individual households by 1990 (Banks 2001). In practice, however, these official claims are by no means unquestionable. In most cases, contracting rangeland use rights to households was not accompanied by specifying the location or boundary of the plots of pastures leased to households (see Banks 2001, Ho 2000 for examples). In other words, the *de facto* contract system has not been implemented in many pastoral regions even two decades after the contract system was introduced.

This is supported by the case of BLF. It was not until 2003 that use rights to grasslands in BLF had been, in reality, contracted to individual households[19]. This can be illustrated by a respondent's comments:

> The most significant decisions that the farm made last year are contracting and allocating pastures to individuals and the real implementation of the central policies of "two rights and one system" (*shuangquan yizhi*) which include the management and use rights (to grasslands), as well as the contract responsibility system. (A manager from BLF)

Since 2003, ranchers in BLF have been entitled with the rights to use and manage the pastures contracted to them. In addition, the plot of the pasture for each household has been clearly defined in terms of its area and location. For example, a staff member of BLF was authorized to lease a pasture with a total area of some 33 hectares (ha), with each of their family members entitled to contract a pasture of about 13 ha in area (Interviews). The contract period is 30 years. Through field observation, some households in BLF have had their leased pastures fenced.

Regarding the implementation of the contract system in the whole reserve, Han et al. (2002: 73) adopted part of a 1996 official document from the Xilingol League government, which refers to the pasture contract in Xilingol League and is summarized as the following. In 1989, local governments or their grassland management agencies - the Animal Husbandry Bureaus - in Xilingol League began to collect rangeland management fees from local ranchers based on the number of their household livestock. In addition, stocking rates were meanwhile defined and herders whose animal numbers exceeded the specified stocking rates were required to pay monetary penalties. Afterwards the contract system was introduced in

[19] It is consistent among several respondents that in BLF, pastures were in reality contracted to rancher households in 2003 and that the implementation of the pasture contract system started in 2003.

Xilingol League. This system included the use right contracts for two types of land - pastures and hayfields. Households were entitled to contract hayfields. Production quotas were set for these hayfields and people who were unable to meet the quotas were imposed monetary penalties. The hay or trees growing in the contracted hayfields were owned, in the long term, by those who cultivated them, and they were saleable and inheritable. At the same time, ranchers were authorized to contract pastures. Before being contracted out to households or groups, the pastures were delimited and evaluated, and their production capacity and stocking rate were defined. Different grassland compensation fees were charged to ranchers according to the degree of overgrazing on their leased pastures. Additionally, the contract was legally notarized and grassland use permits were, at the same time, issued to those who leased pastures (Han et al. 2002).

To sum up, the above summarized document provides a basic description of the *de jure* contract system introduced in Xilingol League where XBR is situated. Nonetheless, the practical implementation of such a contract system may fall short of what the official documents describe, just as what Longworth and Williamson stated as cited in Ho (2000): "At central government level certain policies are in place and provincial, prefectural, county and even township officials will describe (…) how the policy is working. However, at the village and household level, the policy does not exist" (390).

When being asked about the land use rights in BLF or XBR, some interviewees referred to the pasture contract system, that the contract period were 20 years previously and is currently 30 years, and that the pastures were contracted

to local ranchers in 1978. At this time, their voices represent the official language about land tenure in China, just as what Longworth and Williamson indicated[20]. Nonetheless, in reality, the use rights to rangelands had mostly rested with townships or villages. In many areas in XBR, the rangelands had not been contracted to individual rancher households until the most recent years, just as had occurred in BLF.

Furthermore, the uncertainty with respect to the pasture contract, which includes the lack of defined locations or boundaries for the contracted pastures as well as the absence of monitoring and enforcement of the carrying capacity for these pastures, gives rise to the *de facto* conditions of open access in rangelands. Rangelands are viewed as open to all people in a village and that nobody in the village should be responsible for their management, which leads to the practical circumstances of free riding (Ho 2000). Such *de facto* open access regimes, in turn, give rise to the worsening conditions of grasslands in China. In response, policy makers and researchers put forward two distinct ways to solve these issues facing China's rangeland tenure: (1) strengthening the current pasture contract system and thus promoting greater exclusion; and (2) forming the institutions of co-management on the basis of community participation (Banks 2003).

As mentioned above, the reserve, especially BLF, adopted the first approach. All of the five respondents from BLF viewed the establishment of exclusive individual use rights in rangelands as one of the primary steps toward grassland conservation. They believed that when local herders are allocated a plot of pasture

[20] This can be particularly illustrated by the inconsistencies among respondents about when BLF contracted pastures to rancher households: while a large percent of respondents indicated that contracting was undertaken in 2003, there was also some indication in the interviews that rangeland use rights were contracted to ranchers in the 1970s.

which excludes other users, they have more incentives to invest in improvement of the pasture and to stock their livestock within the carrying capacity of the pasture. Using one respondent's words:

> Now the rangelands have been allocated to individuals. He (the rancher) himself raises livestock according to the area of his own pasture and the carrying capacity [of the pasture]. Moreover, he will manage and improve [the pasture] whenever the slight desertification occurs, and thus will play a role in ecological conservation. (A manager from BLF)

They further perceived that under such an individualized land use system, people who manage and invest in the rangelands get the benefits from their capital and labor input. Such a system, therefore, was seen by the five respondents from BLF as one of the most important mechanisms to promote the involvement of local herders in land and resource management.

Nevertheless, from an institutional perspective, researchers (i.e., Banks 2001; Banks 2003; Ho 2000) claimed that the household contract system is not an efficient and effective land right regime in the grassland context; rather, they put forward group tenure arrangements or common property regimes as alternatives. They suggested that the contract system tends to involve high transaction costs in terms of fencing and monitoring/enforcement of boundaries, etc. (Banks 2001; Banks 2003; Ho 2000). For instance, the centralized approach, by which the Animal Husbandry Bureaus and their range police forces supervise the enforcement of carrying capacity on grasslands, is far from cost-effective and thus difficult to put into effect. In addition, the fixed boundary and strict exclusion implied in the contract system work poorly on the ground given the fact that mobility and flexible access are needed to deal with the high variability in spatial and temporal

distribution of rangeland resources (Banks 2001).

4.3 Land use conflicts

XBR, as part of grassland regions in China, has many common characteristics with the country's grasslands in terms of land rights and resource use practices. However, being a biosphere reserve or nature reserve makes it distinctive in land and resource uses from other pastoral regions in that it involves more stakeholders in property relationships and incurs more restrictions on resource access and use. This section examines the currently most dominant land use issues and relationships between local communities, the MB, BLF, as well as other private or public entities within XBR. More specifically, it explores land use conflicts involving different groups with land use interests based variously on: (1) the livelihood need of local communities; (2) the profit goals of private and public entities; and (3) the conservation goals of the MB and its supporting conservation agencies. Two primary forms of ongoing land use conflicts exist within XBR - the conflicts between BLF and the MB, and between the reserve and local communities.

4.3.1 Baiinxile Livestock Farm vs. the Management Bureau

A predominant part of the conflicts between BLF and the MB is centered on land use rights. Compared to the reserve (established in 1985), especially the MB (founded in 1999) or its original organization, the Management Division (founded in 1994), BLF has a much longer history in the region, given its creation in 1950. In

addition, as is referred to above, use rights to most of the core and buffer zones are vested with BLF. On the other hand, the foundation of the reserve was not accompanied by any changes to the existing land and resource rights[21]. In other words, when they were founded, the reserve management organizations from the Management Division to the MB were not entitled to any land rights in XBR.

Nonetheless, both of these two generations of reserve authorities (the Management Division and the MB) regarded gaining land use rights in XBR, especially the use rights to the core, buffer, and experimental zones, as one of the most important preconditions for them to perform their roles and functions. In addition, respondents attributed many obstacles they face in their management activities to the MB's absence of land rights in the reserve:

> The greatest difficulty currently confronting our reserve is that the management rights and land rights are still separated. Now, we have no land rights, which are vested with BLF. So concerning conservation, we encounter great difficulty in the management when BLF owns land rights. (A member from the MB)

Such perspectives on the MB's lack of land rights are at least partly true given the current administrative and decision making power contexts in China (These contexts are stated in Section 5.1.1). However, these perceptions are also somewhat prejudiced given the evidence that some PA authorities, both in China and other nations, can successfully preserve the biodiversity without being entitled to any land rights. In this regard, for the MB to effectively manage XBR, there must exist alternatives to the MB's direct achievement of land rights in the reserve

[21] Because in China, most of the reserves were established after the confirmation of land rights (typically in the late 1970s and the 1980s when the Household Responsibility System was implemented) in the regions where the reserves are situated, the central government declared that the already confirmed land ownership and use rights in these regions remain unchanged when the reserves are founded (Han 2000).

such as the formation of partnerships for reserve management (refer to Section 5.1.2 and Chapter 6).

Moreover, the reserve authorities' viewpoints associated with land rights also embody certain consequences: (1) The reserve authorities have attempted for almost ten years to achieve land use rights in XBR. As a result, the reserve has thus far attained use rights to the four core zones, two experimental zones, and the ecotourism service center, among which the reserve achieved the land use permit to only one zone (Han et al. 2002). In addition, the efforts to get land rights to these areas have cost them a significant part of their limited human and financial resources; (2) The reserve staff have also focused most of their conservation and management activities on these areas, partly because only for these zones do they have use rights. For example, from 1985 to 2001, RMB 912,600 *yuan* has been invested by the reserve authorities into the core and experimental zones, the total area of which is extremely small compared to that of the whole reserve (Han et al. 2002). This is a remarkable figure given the meager total input of RMB 3,398,600 *yuan* for the reserve during the same period (refer to Table 7). Therefore, for the transition zone which encompasses a significant part of XBR's area, the reserve authorities have not made, and are unlikely to make, adequate efforts; (3) In the updated Management Plan for XBR (State Forestry Agency et al. 2003), it is proposed to delineate another three core areas in XBR and thus increase the total number of core zones to eight. The plan also proposes to expand the area of the five existing core zones. As a result, with the three new core zones, the total area of core zones in XBR is planned to be increased from 18.5 km^2 to 58.73 km^2 (State

Forestry Agency et al. 2003).

The MB's (and the Management Division's) long-term struggle for land rights to the core, buffer, and experimental zones, along with its focusing efforts on these areas, gives rise to the ongoing conflicts between the MB and BLF. From the perspectives of respondents from the MB, BLF officials have been resistant to the existence of XBR as the reserve "occupies BLF's territory" (A member from the MB). On the other hand, respondents from BLF perceived that XBR has not brought any economic benefits to the farm. Moreover, the MB-BLF conflicts are represented in an important sight-seeing location within XBR, the Baiinxile Grassland Ecotourism Area. The Baiinxile Grassland Ecotourism Area is under the jurisdiction of BLF, and is also, undoubtedly, within the boundary of XBR. With a total area of 3,407 km^2, the Baiinxile Grassland Ecotourism Area encompasses most of BLF's territory and the three core zones of XBR. The MB's ecotourism service center is also situated within this area. The Baiinxile Grassland Ecotourism Area is located 52 km southeast of Xilinhot Municipality.

BLF takes the entrance fees to the Ecotourism Area as the farm's own income. Two types of visitor entrance fees are defined: they are respectively RMB 5 *yuan* and 10 *yuan* per person. The former price is applied for those who have some kinds of relations (*guanxi*) with BLF, the MB, or other stakeholders within the area. For example, someone who claims to be the acquaintance of the director of BLF's Production Division can enjoy the preferential entrance fee of RMB 5 *yuan*. Moreover, with regard to the income from the visitor entrance fees, there are great discrepancies between two respondents who are from the MB and BLF,

respectively. A respondent from the MB indicated that the visitor entrance fee generates a considerable income of RMB 45,000 *yuan* annually for BLF, and that as the Ecotourism Area is within XBR, the MB should be allowed to share part of that money. But on the other side, a respondent from BLF said that the farm not only gets no profits from the Ecotourism Area but has to subsidize its operation with RMB 200,000 *yuan* per year.

Furthermore, another source of conflict between the MB and BLF emerges from their overlap in the tourist market. Both the MB and BLF operate tourist services. As the most promising and profitable site for tourism operation in XBR is the Baiinxile Grassland Ecotourism Area, the MB also tries to make a profit from this area, for example, through its ecotourism service center situated within the Ecotourism Area. In addition, the MB and BLF advertise their tourism resources to the exclusion of one another, with the former focusing on the whole reserve and the latter on the Baiinxile Grassland Ecotourism Area. At this point, two sets of pamphlets for tourists and visitors have come from the MB and BLF respectively, which are excerpted and translated in Table 8.

Table 8: The Management Bureau and Baiinxile Livestock Farm's propaganda of their tourism resources

From the MB's brochure:	From BLF's brochure:
Xilingol Grassland Nature Reserve was established in 1985…On September 7, 1987, it was internationally recognized by the UNESCO MAB program. In 1993, it joined in the Chinese MAB network. And it set up twinning relationships with Bookmark Biosphere Reserve based in Australia in 1995.	Baiinxile Grassland Ecotourism Area…was internationally recognized by the UNESCO MAB program in 1987. In 1993, it joined in the Chinese MAB network. And in December 1997, it was decreed by the State Council as the first national level grassland nature reserve in China.

Additionally, photos of the certificates of XBR's acceptance into the international and Chinese biosphere reserve networks are included in the pamphlet that is disseminated at the Baiinxile Grassland Ecotourism Area (Figure 8). Except for the two photos of the certificates of XBR's acceptance into the international and Chinese biosphere reserve networks, in the whole pamphlet, XBR is not mentioned at all. This is quite misleading to outsiders who may view the Ecotourism Area as an independent reserve, rather than a part of XBR. Managers from BLF utilize the image of XBR to advertise their tourism resources, while at the same time they are unwilling to cooperate with the reserve staff in running tourism businesses. The MB, in return, gets a plot of land to fence, where its ecotourism service center as well as research and monitoring station are located, in the Baiinxile Grassland Ecotourism Area, allowing for some profits. This gives rise to the circumstances that BLF and the MB operate, disseminate, and benefit from their tourism resources to the exclusion of one other. In general, the conflicts between the MB and BLF take the form of the conflicts of interests in which land and resource rights play a significant role.

Figure 8: The pamphlet on Baiinxile Grassland Ecotourism Area

4.3.2 The reserve vs. local communities

The conflicts between XBR and local communities are of the typical form of people-park conflicts found throughout the world. The reserve versus local community conflicts can be attributed to several major factors: fencing, resettlement, restrictions on resource use and access, and controlling livestock numbers on grasslands. These diverse factors respectively play a role in different functional zones in XBR. In other words, in different functional zones, people-park conflicts are centered on different kinds of lost benefits of local communities and different conservation objectives of these areas. The conflicts, both actual and

potential, between the reserve and local communities are outlined in Figure 9 followed by a description in greater detail.

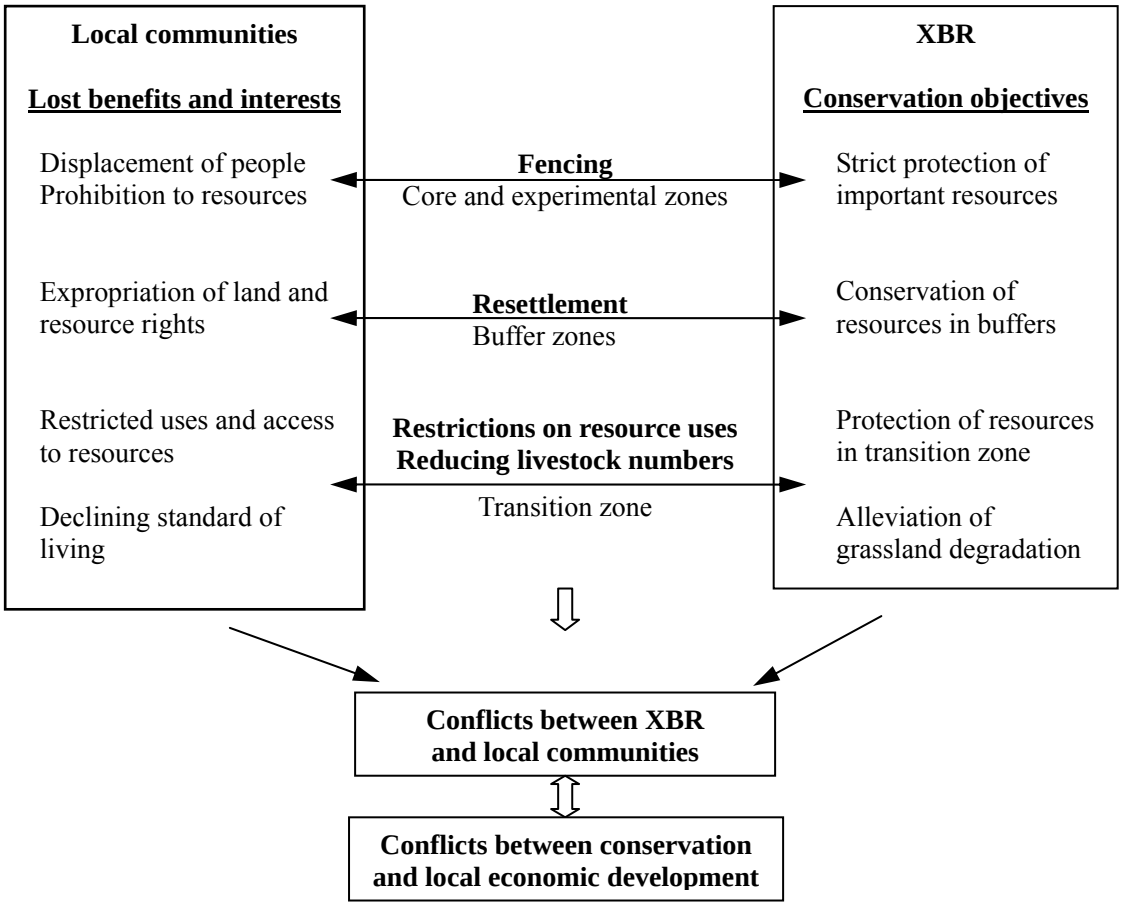

Figure 9: Outline of the conflicts between Xilingol Biosphere Reserve and local communities

Conflicts between XBR and local communities can be attributed to several major causes such as fencing and resettlement, which play a role in different functional zones respectively. In addition, the people-park conflicts focus on a series of lost socioeconomic benefits of locals and a series of conservation objectives of the reserve. These lost benefits and conservation objectives are represented in different functional zones with different patterns and contents.

Fencing

All the core areas in XBR were fenced, under a status of strict protection. In the *XBR Regulation*, it is stated:

> The core areas should be fenced. It is prohibited for anyone to enter into the core areas without permission. Anyone who wants to carry out scientific research within the core areas must, according to prescribed procedures, receive permission from relevant departments.

In XBR, fencing was initially implemented by the alliance between the reserve and BLF right after the reserve was established. From 1985 to 1994, BLF had appointed a group of people to fence and maintain the core areas (Han et al. 2002). From the reserve establishment until now, fences have been continuously rebuilt and repaired as they have been destroyed many times. Currently, the five staff from the MB's research and monitoring station take charge of patrolling around the core areas, rebuilding and maintaining fences, and coordinating with inhabitants surrounding these areas.

In the reserve, fencing gave rise to the displacement of residents who had lived in the core areas for generations and the prohibition of resource use within these areas. Respondents believed that fencing has compromised the interests of locals in that it reduces the total area of rangelands available for herders: "one more plot [of land] being fenced means that villagers lose one more plot of land or pasture" (A member from the MB). Additionally, during the process of building, rebuilding, and repairing of fences, local herders were seldom consulted, let alone provided compensation for their losses, by the reserve authorities (Interviews).

In response, locals have resorted to violence in defense of their rights and interests. For instance, from the reserve establishment until now, local residents have continuously destroyed the fences surrounding the core areas (refer to Table 9) and grazed their livestock in these areas (Han et al. 2002). Using one respondent's words:

> After the establishment of the reserve, the conservation and management of the land in the reserve have threatened the benefits of local herders. This inevitably leads to conflicts. Herders resist when their own interests are threatened. Taking fencing as an example, they have destroyed the fences we built and have moved them at night. They have also broken the windows of the management station we set up. (A member from the MB)

Table 9: Repair and damage of fences in several core and experimental zones of Xilingol Biosphere Reserve from 1993 to 2002

Functional areas	Repair times	The cost of fencing materials (Unit: RMB 10,000 *yuan*)	The conditions of fences in 2002
Core Area of Meadow Grassland Ecosystem in Chaganaobao	1		Completely damaged before 1993.
Core Area of Typical Grassland Ecosystem on the Hailiute Plain	11	7.21	Damaged. The core area was in open condition.
Core Area of *Peace Meyeri* in Taowuyintaolegai	13	4.78	Damaged. The core area was in open condition.
Core Area *of Populus Davidiana* and *Betula Plytyphylla* in the Abutouer Mountain	13	4.2	In good condition.
Experimental Zone of Degenerating Grassland in Dongtaizi	7	3.92	Out of repair since 1999. Fences were lost.
Experimental Zone of Huanghuagou Grass Cutting Field	3	5.35	Completely damaged in the spring, 1995. Fences had not been repaired until 2002.
TOTAL	**48**	**25.55**	

Source: Han et al. 2002: 79.

Table 9 shows that fences surrounding the core and experimental zones have been destroyed by local residents again and again. Rebuilding and maintenance of the fences have cost the reserve authorities a considerable amount of money. The continuous damage to fences represents one impact of people-park

conflicts caused by the expropriation of resource use rights from local people without adequate consultation and compensation. Respondents were in basic agreement that the reserve establishment occurred after the residence of locals who had lived in the area for generations. And currently the reserve managers appear to pay more attention than before to coordinating with locals when they rebuild fences. For instance, the most recent rebuilding of fences that was implemented by the MB took place in 2003 in the Core Area of *Peace Meyeri* in Taowuyintaolegai. During the process, the reserve staff distributed propaganda pamphlets to residents around the core area, and requested them not to destroy the fences and to monitor the damage activities.

Moreover, from the perspectives of respondents, the conflicts with herders around the experimental zones, which are also fenced, are not as intense as those taking place in the core areas. The MB has employed some residents living around the experimental zones with the wage of RMB 200 *yuan* per month to conserve and oversee these zones. The residents surrounding the experimental zones have also been allowed to cut grass in these areas once a year or once every two years. Further, respondents also believed that in the long run, the experimental zones will benefit locals in ways other than regenerating pastures. They also recognized the importance of involving locals in the management of these zones. According to respondents, the current conflicts occurring in the experimental zones were attributed to the lack of awareness among locals about the long-term benefits these areas can provide. Respondents further expressed that they should promote dissemination about conservation to improve local awareness.

Resettlement

Another potential source of conflict between the reserve and local communities is resettlement. In 2001, the Xilingol League government decreed a policy of "ecological migration of people" around the core areas of nature reserves. The policy declares that residents living around nature reserves' core areas should be resettled within a time frame of one to two years. In XBR, this resettlement program is still underway in the buffer zones and is still in its early stage. The resettlement program has affected people in the buffer zones, the total area of which is 56 km^2.

Moreover, the program is too new to assess its impacts on the relationships between the reserve and local communities. In addition, while resettlement always proves to be controversial in PAs around the world, the degree of conflict depends upon how the process is implemented (Brandon et al.1998). So the following is focused on the ongoing process of the resettlement program implemented in XBR and the potential conflicts it may cause. The analysis is based on the main issues associated with the implementation of such resettlement programs, which include "whether people were consulted or compensated, whose lands were expropriated, who was compensated, at what value, within what time frame" (Brandon et al. 1998: 19).

In XBR, it is BLF, rather than the MB, that is implementing the program of "ecological migration of people" in response to the directive from above. This may be due to both the MB's inadequate authority and its scarce human and financial

resources. The core issue of this reallocation program is that the land and resource use rights of the ranchers living in the buffer zones have been expropriated, at least to some extent. More specifically, residents in the buffer zones have to leave the places where they have lived for a long time. In addition, animal grazing, along with other forms of resource use and access, begins to be prohibited in these zones, although people resettled are entitled to cut grass within the buffer zones during certain periods in a year or over several years.

Further, people resettled are provided the following compensation by BLF or the central government:

- A plot of pasture in the transition area, which is allocated by BLF
- RMB 30,000 *yuan* per household provided by the central government
- The permits allowing grass-cutting in the buffer zones
- Places to live (BLF has built two rows of rooms in the transition area for people who are reallocated to live), with water and electricity facilities provided
- Alternative source of income including the programs of breeding milk cows, operating tourist services, and others.

Despite the compensation, respondents perceived this resettlement program has had negative impacts on people resettled at least in the short term. First, they lost some economic benefits in the short run. Although they were allocated a new patch of pasture in the transition zone, the pastures reallocated are not comparable to the pastures in the buffer zones in terms of their total area and conditions of the grass. In addition, herders resettled had to shift their livelihood means from

livestock grazing to other businesses such as tourist services, which results in not only lost economic benefits but a break with their traditional patterns of living and working. As one respondent described:

> They have been living in the area for decades of years. They have been mainly dependent on livestock husbandry for a living. Now they are resettled out to operate business, tourism, breeding milk cows, and breeding livestock in pens. In the short term, their costs have increased and profits decreased. (A member from the MB)

Restrictions on resource use and controlling livestock numbers on grasslands

In XBR, people-park conflicts are also raised by the restrictions of resource use and access to local communities, as well as the policy of controlling livestock numbers on grasslands. Such conflicts take place in the transition area of the reserve. Respondents were in basic agreement that the reserve has influenced, to a greater or lesser degree, the land and resource uses of local communities in the transition area, although the impacts of the reserve on people in this area are not as remarkable as on those living in other functional zones. Further, the impacts are represented in two primary ways.

First, the establishment of the reserve was accompanied by a series of rules and regulations on resource use and access, which are reflected in the *XBR Regulation*. According to the regulation, a wide range of activities such as land reclamation, logging, hunting, soil-digging, and medicinal-plant gathering are restricted, while these activities had been freely engaged in by local herders before the reserve was established. Not surprisingly, locals sometimes respond to the restrictions on resource use and access imposed by the reserve with conflict and

resistance:

> Herders have been living in this area for generations. Then we established the reserve, demarcated their living spaces within the boundary of the reserve, and let them do this and do that. This gave rise to direct conflicts. (A member from the MB)

In addition, some respondents viewed such conflicts as the result of inconsistencies between ecological conservation and economic development of local herders.

Furthermore, another influence of the reserve on inhabitants in the transition area is linked with the policy of "controlling livestock numbers" advocated by central and local governments. The basic principle behind this policy is that grassland degradation can be alleviated by lessening the pressures of livestock on grasslands. In XBR, local officials try to undertake cutbacks in stock numbers according to the carrying capacity of grasslands. This carrying capacity is determined through the estimation of local Animal Husbandry Bureaus. Further, the Animal Husbandry Bureaus and their associated range police forces are in charge of the monitoring and enforcement of the carrying capacity of grasslands. Taking BLF as an example, according to respondents, herders in BLF are required to control the number of their animals grazed on the pastures which they have leased. Stocking rate is determined by local Animal Husbandry Bureaus for these pastures. If the livestock numbers grazed in a pasture exceed the stocking rate, the rancher household which has contracted the pasture and has overstocked is required to dispose of the extra animals by selling or slaughtering within a regulated time frame. If the rancher household does not reduce its animal numbers on time, the Animal Husbandry Bureaus will have the extra animals sold and then return the

money to the rancher.

Nevertheless, reductions in livestock numbers can have considerable influence on the livelihood of local ranchers. Local people are generally unwilling to reduce their numbers of animals. According to a report from the U.S. Embassy Beijing (U.S. Embassy Beijing Environment, Science, Technology & Health Section 2001), in recent years, ranchers in Xilingol League have been required to slaughter 40% of their animals each year, in practice these herders have reduced their livestock at the rate of about one-half of that which is required. This is quite understandable given that livestock husbandry provides the principal source of income to local herders. Thus, for them, reducing livestock numbers means a decrease in their living standard.

In addition, in response to the policy of "controlling livestock numbers on pastures," herders are also called on to breed livestock in pens, or to simultaneously breed and graze animals. From the perspectives of respondents, breeding livestock in pens has a negative effect on local benefits in the short time, as breeding involves more costs than grazing. In addition, breeding is less favorable than grazing for the growth of some kinds of livestock such as sheep and goats. Another drawback of breeding livestock is that with long term animal grazing traditions, breeding appears to run counter to local people's traditional land use practices which have been in existence for thousands of years. Livestock grazing is valued by locals because it not only provides the predominant means of sustenance for them, but it implies a close link with their cultural and social traditions.

On the other hand, however, respondents also believed that locals can be

compensated for their lost interests through ecological conservation or the development of tourism resources in XBR. But such compensation is not available in the near future given the reserve's current status. In other words, herders are called on to give up part of their current benefits for which they will be compensated in the future when ecological conditions improve and when tourism development in the reserve is profitable. However, whether herders can have the opportunities to share benefits from tourism in the future is quite questionable, given the current circumstances that they are seldom provided opportunities or resources to participate in the ongoing tourism operations in the reserve (refer to Chapter 6). In sum, it seems unjustifiable for these local people to be burdened with the lost benefits accompanying the existence of the reserve or government policies.

Conflicts between the reserve and other local entities

Conflicts between XBR and other local entities rely on the fact that the reserve designation leads to restrictions on land and resource uses to the public or private sectors within the reserve:

> [The reserve] restricts the activity space to these entities…For example, before [the establishment of the reserve] nobody supervised them, and thus they were able to do whatever they wanted to. Now the biosphere reserve was established, which brought about many rules and regulations that are unfavorable to them. This leads to…not so remarkable conflicts. (A member from the MB)

4.4 Resolution of people-park conflicts

The creation of a PA often implies that local use and access to natural

resources are restricted and that local communities bear the loss without being provided alternatives for economic development to satisfy their basic needs (Brandon and Wells 1992; McNeely 1995). In response to these lost opportunities, locals tend to be pitted against PAs in a variety of ways such as encroachment into or destruction of PA resources. On the other hand, in most cases, PA management authorities lack the ability, resources, and inclination to apply a constructive method to address people-park conflicts (Wells and Brandon 1993).

From the interviews, the reserve staff realized that herders need to maintain productivity for their livelihood. Productivity depends primarily on livestock grazing which is at the core of many conflicts. In addition, they also perceived the conflicts as partly linked to the lack of awareness of the importance of conservation among local herders. For instance, respondents suggested that along with the increasing local awareness of the negative impacts of overgrazing on grasslands and on their personal livelihood, herders will voluntarily control their livestock numbers:

> In fact, the major issue is the conflict between conservation and local herders. Right? Anybody wants to raise more livestock. Right? But we have to control him (or her). This is the focus. But if he (or she) is aware of the focus, it will not be a conflict. (A member from the MB)

Moreover, the MB's lack of resources, especially funding, to resolve the conflicts between local people and XBR was also discussed by respondents. They regarded the focus of the conflicts as centering on the economic status of local residents. If the economic conditions of local herders could be improved through certain financial support, the relationships between the reserve and locals would improve. This can be illustrated by what one respondent said:

> The reserve should bring economic benefits to local herders. In other words, through conservation, [we] let them actually get rich. By means of sustainable use of grassland resources…, the conservation, and the benefits the reserve brings to local herders, [we] let them indeed realize the importance of conservation. [We] let villagers gain benefits. This is important. (A member from the MB)

In sum, respondents admitted that the successful resolution of people-park conflicts depends on providing locals with direct economic benefits, as well as the improvement of local awareness of conservation and the negative impacts of grassland degradation, by way of promoting environmental education. In fact, these two approaches advocated by respondents to resolve conflicts are intertwined: when local communities realize that XBR or conservation activities can offer them direct socioeconomic benefits, they will provide more support to conservation and less resistance to the reserve. Locals should benefit directly from PAs, which can serve as the compensation for their losses on the one hand, and as the motivation for them to conserve the natural resources within these areas, on the other (McNeely 1995).

CHAPTER 5: DECISION MAKING POWERS AND COMMUNITY PARTICIPATION

This chapter examines decision making powers and processes as well as community participation in natural resource management in XBR. It is based on the framework provided by Venter and Breen (1998) which is presented in Figure 4. Section 5.1.1 describes decision making powers and processes in XBR, and presents the power relationships among a range of stakeholders including governments/government agencies and the MB, etc. Section 5.1.2 presents the existing and potential partners for reserve management, along with the description of the inevitable trend toward the formation of partnerships among a wide range of stakeholders in XBR to improve reserve management. Finally, Section 5.2 adds another important partner - local communities - to the partnerships for the management of XBR and thus makes the partnership framework illustrated in Figure 4 fully represented in this study. It evaluates the level of community participation in the reserve and presents community participation mechanisms applied in XBR.

5.1 Decision making powers

5.1.1 Decision making powers and processes in Xilingol Biosphere Reserve

To comprehend the decision making powers and processes in XBR, it is

first necessary to have a basic appreciation of the distribution of authority in China's political system. "Authority in China is fragmented by function, by territory, and by rank" (Lieberthal 1997: 4). More specifically, China has different territorial levels of governments: the central, provincial, city, county, township, and village levels. At the same time, there also exist different levels of government agencies defined by function, for example, the hierarchies of Environmental Protection Agencies, Forestry Agencies, and Agencies of Land and Natural Resources, etc. These government agencies range from the central to city levels. In addition, above each of these specialized government agencies typically sit at least two administrative bodies: the government at the territorial level at which the government agency exists, and the office in the same functional system but in the next higher territorial level of the agency (Lieberthal 1997). Taking the Xilingol League Environmental Protection Bureau as an example, its direct "upper levels" include the Xilingol League Government and the Inner Mongolia Autonomous Region Environmental Protection Bureau.

In the above mentioned authority context, XBR is subject to the administrative authority of different governments whose territories are covered or partly covered by the reserve, including the governments of the four livestock farms, two banners (*qi*) and two townships (*sumu*) (Figure 10). In other words, XBR is a multi-jurisdictional area which straddles the jurisdictional boundaries of these local governments. Additionally, in any type of the functional areas of the reserve, whether in the core areas or the transition zone, it is these local governments that make decisions about resource use and management. For instance,

the government of Xiwuzhumuqin Banner (*qi*) is in charge of decision making powers regarding the management of the Core Area of Typical Grassland Ecosystem on the Hailiute Plain (refer to Table 1).

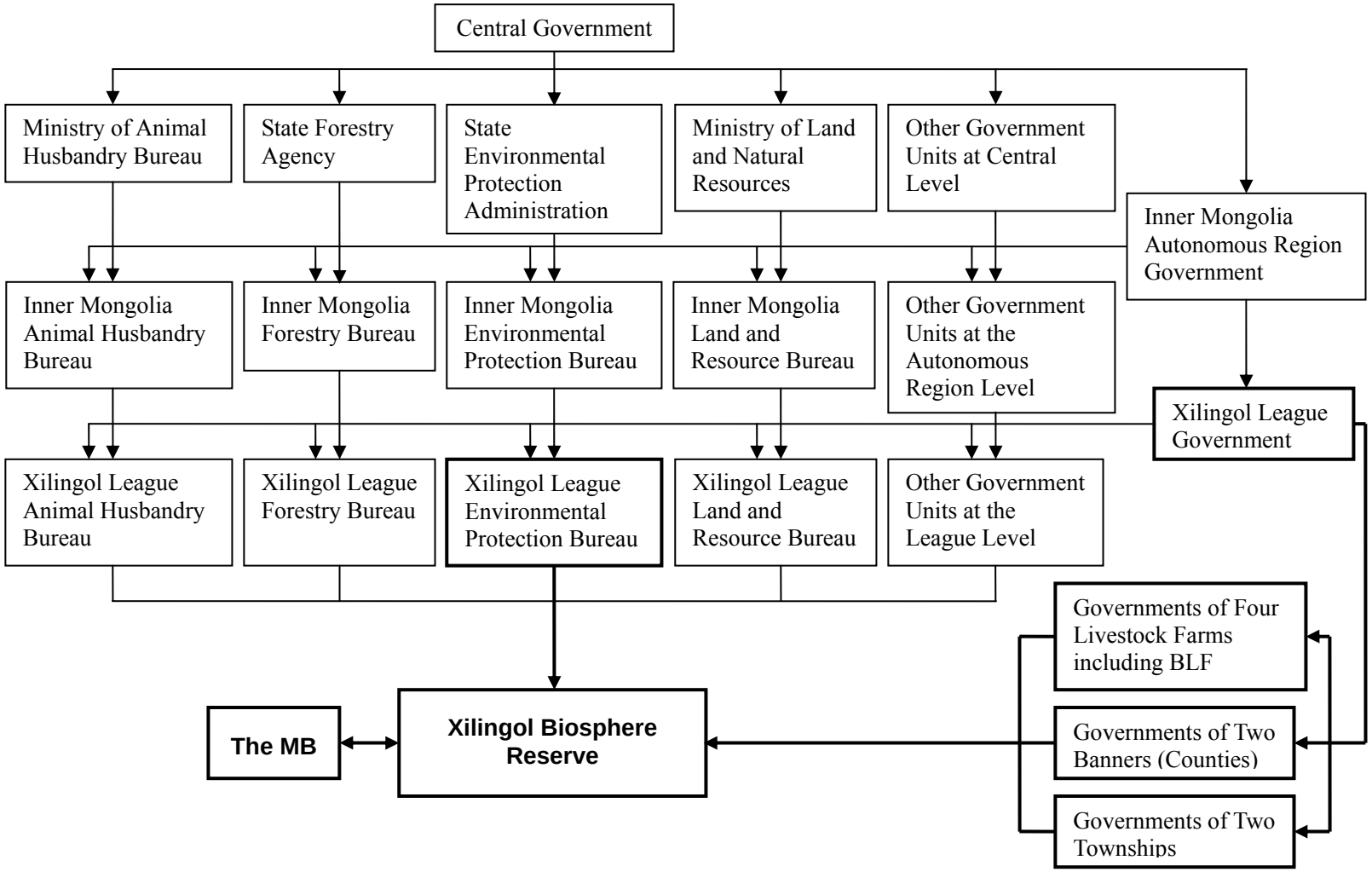

Figure 10: Flow diagram of decision making powers for Xilingol Biosphere Reserve
Each box represents a component of the power structure for XBR. The flow of the decision making powers between the components is represented by arrows. The components which have most direct decision making powers on the management of XBR are represented by bolded boxes and arrows and are presented in additional detail in Figure 11.

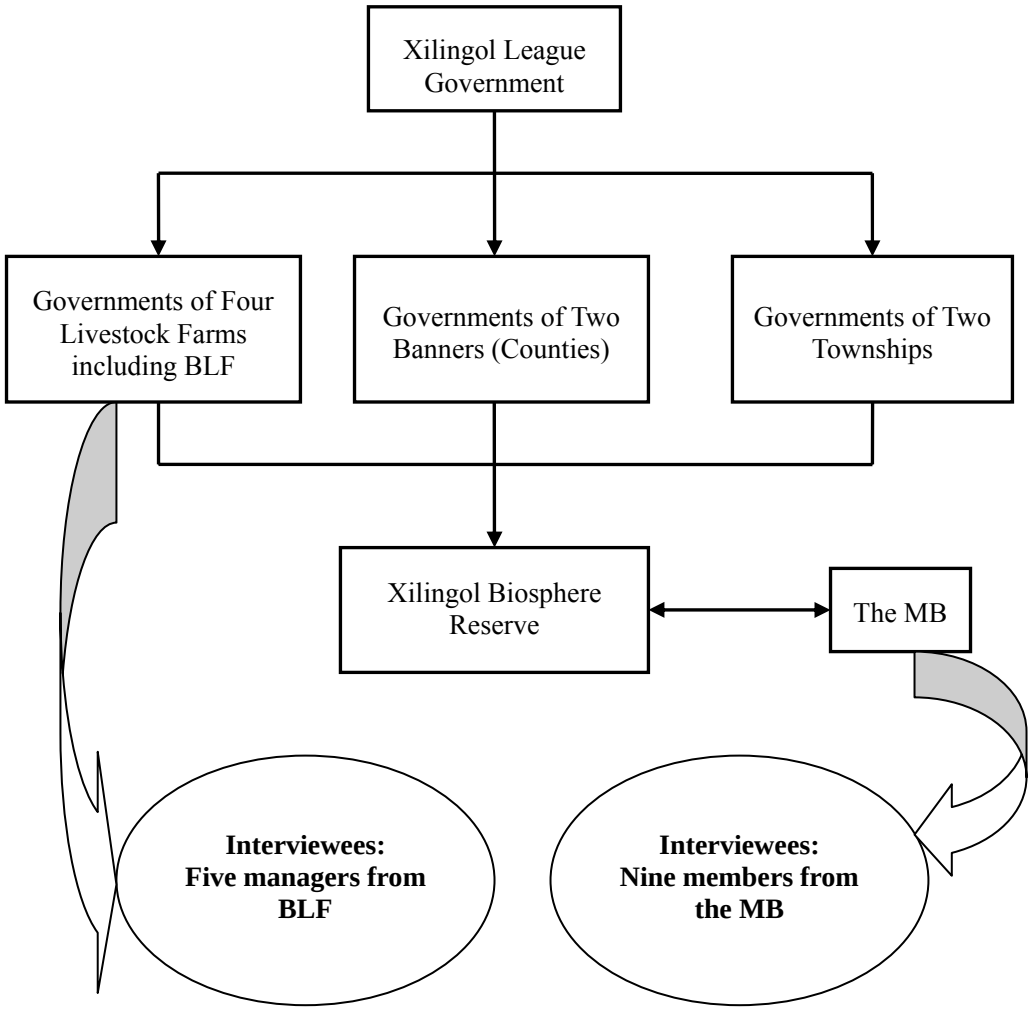

Figure 11: The position of the fourteen interviewees in the decision making structure in Xilingol Biosphere Reserve
Each box represents a component of the power structure for XBR. The flow of the decision making powers between the components is represented by arrows.

Furthermore, as presented in Figure 10, the reserve is simultaneously under the powers and authority of a range of vertically organized government agencies. XBR is subject to the decision making authority of a hierarchy of Environmental Protection Agencies from central to league levels, with the State Environmental Protection Administration sitting at the top of this hierarchy. At the same time, other vertically arranged government agencies charged with agriculture, animal

husbandry, forestry, land and natural resources, and other sectors also have a stake in the management and decision making of XBR. In addition, the MB is "superimposed on this administrative pattern" (Dower 1995: 217) and "could be seen as yet another public body in an already confusing scene" (218). Figure 10 basically describes the power relationships between XBR (or the MB) and the governments or government agencies which have direct or indirect authority and decision making powers on reserve management.

As presented in Figure 10, decision making in XBR takes the form of a top-down, one-way process through a complicated bureaucratic hierarchy. Information and decision making are disseminated through a hierarchical administrative structure. In other words, administrative directives are transmitted from upper level governments and their agencies to the lower levels. At this point, a question is raised: where is the position of the MB in this decision making structure?

In China, most of reserve management organizations such as the MB have no jurisdiction in the reserves which these organizations have been founded to manage and conserve. There is also no legislative support for the authority of such organizations on reserve management. As a result, these organizations tend to have few decision making powers to regulate and manage the reserves. In China, "the problem of lack of authority (*wuquan wenti*) and interference from other agencies was of primary concern to reserve managers" (Harkness 1998: 198). For instance, compared to the governments or their agencies listed in Figure 10, which have legal mandates for reserve management, and some of other stakeholders in XBR, the MB

proves to be relatively weak in terms of decision making powers and authority, leaving it vulnerable to inter-organizational conflicts and budget cuts.

In XBR, it is the local governments which have jurisdictions within the reserve, rather than the MB, that carry out the programs for poverty alleviation, resettlement, ecological compensation[22], and others. The financial and authority dilemmas faced by the MB impede it from taking charge of these programs, although it serves as the sole organization specifically responsible for fulfilling the management and conservation roles from the perspective of the whole reserve. As a consequence, a large part of the organization's efforts have been focused on coordination with these local governments, especially BLF. From respondents' perspectives, the MB's lack of land rights leads to its limited authority in decision making and management of XBR, which in turn makes it unable to carry out "conservation in the true sense" (A member from the MB). As one respondent claimed:

> The reserve is in coordinated relationships with local governments. We still lack land rights, right? Land rights are still vested with local governments. There can be only coordinated relationships [between us and these local governments]. We coordinate. Then they convey [decisions to local communities]. (A member from the MB)

As mentioned before, the reserve staff have so far put most of their efforts on the management and conservation of the core, buffer, and experimental zones of the reserve. They have had a large part of their limited human and financial resources invested in these areas, while they have dealt little with the management

[22] "Ecological compensation" is used in China's policy field to refer to the compensation provided to people who are resettled out of ecologically fragile environment or the buffer zones of nature reserves. In XBR, it is linked with the program of "ecological migration of people" surrounding the core areas (see Section 4.3.2 under "resettlement").

of the transition zone which encompasses the largest area in the biosphere reserve. Therefore, the efforts to coordinate with BLF have cost the reserve staff considerable time and energy. Moreover, the authority imbalance between the MB and BLF also gives rise to the difficulties faced by the reserve staff when they carry out projects on the ground. This can be illustrated by a respondent's comments:

> As the land rights are vested with BLF, now we have great difficulties in reserve management. Today, when we want to initiate certain projects, we have to consult with BLF first. Then we always cooperate with BLF to co-apply or co-implement the projects. (A member from the MB)

So what are the causes for the MB's limited decision making powers and authority in the management of XBR?

Firstly, the MB's lack of decision making powers can be partly attributed to its organizational character. In China, most of reserve management organizations such as the MB serve as public enterprises (*shiye danwei*), which never have administrative powers and authority. Han (2000) suggested that the administrative authority of reserve management organizations should be strengthened, if they are to effectively fulfill their functions of conservation, management, and arbitration of illegal resource uses in the reserves.

In this regard, respondents realized that the MB's organizational character as a public enterprise (*shiye danwei*) is directly related to the organization's inadequate authority within the reserve. On the other hand, a respondent perceived that decision making of the Xilingol League government represents the MB's decisions because the Xilingol League government seeks advice from the MB when it wants to initiate a program in XBR such as a resource exploitation project and when it proposes some changes on land use policies:

> The MB's upper level unit is one of the Xilingol League government's functional agencies – the Xilingol League Environmental Protection Bureau. So the decision making of the government may have represented the MB's concern. (A member from the MB)

Yet these words just imply the official languages of officials from government structures in the context of the one-way, top-down decision making process.

Secondly, the lack of adequate legislative support, as well as the absence of clearly defined responsibilities, rights, and authority for the MB also contribute to its weak presence in the reserve. No legislation, regulations, or policies in the country clearly define what reserve management organizations should do to conserve natural resources in the reserves, what they can do, what their authority and rights are when they fulfill their conservation functions, how to ensure their enforcement powers to impede actions that threaten the biological diversity, and how to balance or ensure their powers and authority when they are involved in conflicts with other stakeholders in reserves such as local governments and their agencies. Taking the *XBR Regulation* as an example, it seldom refers to the power relationships between XBR's management organization (currently it is the MB) and local governments/government agencies. Even when the power relationships are mentioned, the regulation only states that "when they design annual plans for land uses, the relevant agencies of governments whose jurisdictions are within the area of the nature reserve should seek suggestions from the reserve management organization" (Inner Mongolia, the National People's Congress 2001: 1).

Moreover, although the regulation declares the roles of the MB in reserve management (refer to Section 3.3.2 in which the MB's primary roles defined by the

XBR regulation, along with the *Nature Reserve Regulation*, are listed), they are described in a general sense, which makes it difficult to provide any legislative basis for the MB's decision making authority in managing XBR. Furthermore, the reserve Management Plans designed by the MB and conservation agencies serve more as an instrument to apply for funding from governments and their agencies than as the documentary basis for the MB's responsibilities and rights. On the other hand, even if the strong legislation for the management of reserves exists in China, the scarce personnel and logistical resources for these reserves make the enforcement of such legislation problematic. The MB's lack of authority, therefore, is simultaneously intertwined with its financial and personnel scarcity.

Finally, with regard to its establishment, the MB is not a locally-initiated organization, but a government founded organization, with its members either appointed by governments and their agencies or working as employees. In addition, the establishment of the organization was not accompanied by adequate empowerment for the MB to perform its roles. As a consequence, the formation of collaborative relationships with local governments and government agencies, local communities, and other stakeholders in XBR is of great significance for the MB to effectively fulfill its conservation functions.

In numerous countries around the world, different forms of liaisons are often established to facilitate shared decision making and power sharing among stakeholders and interest groups in PAs. This is particularly the case when the management of the multi-jurisdictional areas such as biosphere reserves or river basins is concerned. In China, there is also a trend toward the foundation of

collaborative relationships or partnerships among different stakeholders in decision making and management of reserves. Under such circumstances, XBR has also started its first step toward the formation of partnerships, which is stated in the following section.

5.1.2 Pathways to partnerships

In the multilevel administrative system for managing XBR which is presented in the last section, negotiations and coordination are needed between the hierarchy of governments and their agencies, if the consensus about certain issues of the reserve is to be reached. While the complicated inter-agency relationships have existed in the region for a long time, the establishment of the reserve has undoubtedly exacerbated the originally intricate power relationships among these government actors. Plus the poorly defined responsibilities, rights, and powers among these different actors in reserve management, conflicts and disputes are frequently the consequence. For example, respondents viewed conflicts between a broad range of interest groups in XBR as one of the key barriers for effective management of the reserve.

Many of the stakeholders may have realized the adverse influence of such conflicts on reserve management. However, few of the organizations are willing to take the initiative to build up collaborative relationships with each other, because they are afraid that the partnership "threatens them as it undermines their authority and expertise" (Kolavalli and Kerr 2002: 228). Such challenges threatening the formation of inter-organizational cooperation are enlarged when the issue of

cross-jurisdictional management is concerned. For instance, the local governments whose territories are within XBR may hesitate to cooperate with other stakeholders as they fear that their authority and powers might be threatened by the cooperation beyond their jurisdictions. As a consequence, the relationships among all stakeholders in XBR have been based on the *in situ* administrative levels.

Nonetheless, along with the increasing emergence of partnerships or other collaborative relationships on PA management both worldwide and in China, XBR is also on the pathway to partnerships, although a great number of challenges remain before success can be claimed. In addition, during the 20 years since its establishment, XBR has also laid some foundation for the formation of partnerships for reserve management. For example, the alliance between the reserve and BLF had been in existence for about nine years, although unfortunately it ended with dissolution, as is referred to above. Further, there are also many existing and potential partners of XBR. These partners can contribute to the management and conservation of XBR in different ways such as the provision of financial, technical, and manpower resources to the reserve. Additionally, the formation of partnerships among these different agencies, organizations, or groups which have a stake or interest in reserve management is critical for effective conflict resolution in XBR. At this point, the primary existing and potential partners of XBR are presented below:

Local governments: Local governments which have jurisdictions within XBR are critical stakeholders in the reserve. It is referred to above that the decision

making powers on the management of all the reserve's functional zones are vested with these local governments. BLF had been in alliance with the reserve and had assisted reserve management for about a decade (From 1985 to 1994). But recently the conflicts with BLF have become one of the major impediments for the MB's ability to perform its functions. Along with the MB's conservation and management activities increasingly extending to the transition area, the interactions and collaboration with local governments other than BLF will become more and more important.

Government line agencies: The partners of XBR included into the category of government agencies primarily consist of those government units at the league level such as the Xilingol League Animal Husbandry Bureau (see Figure 10). These agencies are important actors in decision making processes in XBR. For example, the Xilingol League Animal Husbandry Bureau takes charge of estimating, determining, and supervising the enforcement of the carrying capacity of grasslands in the reserve. In addition, currently the Xilingol League Environmental Protection Bureau acts as the direct upper-level agency of XBR and takes the role of overseeing reserve management.

Moreover, government agencies at the central or autonomous region levels also have administrative authority and decision making powers in reserve management. For instance, the State Forestry Agency has directly participated in the design of the 2003 Management Plan for XBR. In general, these government line agencies "have functional responsibilities of extension and regulation" (413)

and they assume administrative authority in specific sectors (Murphree 1994).

Universities and research organizations: The primary research partners of XBR include the University of Inner Mongolia and the Inner Mongolian Grassland Ecological Research Station of the Chinese Academy of Sciences. The Inner Mongolian Grassland Ecological Research Station was founded in the reserve in 1979. It has carried out a lot of research on the grassland ecosystem in XBR. In addition, the research station has assisted XBR in ecological monitoring and defining the carrying capacity of the grasslands. It has also offered the analysis of the causes for and the potential solutions to grassland degradation in XBR. In 1994, the Chinese National Committee for Man and the Biosphere Programme took the initiative to establish an organization responsible for providing scientific and technical support for XBR. The Inner Mongolian Grassland Ecological Research Station and the University of Inner Mongolia joined in the organization as advisory members. Unfortunately, this organization has existed only on paper due to the lack of effective cooperation mechanisms among its members and XBR's own plights (Han et al. 2002).

Other biosphere reserves: In 1995, XBR formed a twinning relationship with the Bookmark Biosphere Reserve based in Australia. Based on this international collaborative relationship, the two biosphere reserves have made thirteen visits to one another and have discussed their management experiences. Through the twinning relationship, the MB managers and some government

officials have achieved considerable training opportunities.

Donor and aid agencies: The Canadian International Development Agency has implemented the project of Biodiversity Protection and Community Development in six nature reserves in Inner Mongolia Autonomous Region[23]. XBR is one of the six project sites. The project started in 2001. It aims to provide technical support for the management of the nature reserves, and to improve community participation and inter-agency coordination in reserve management. According to respondents, through the project, the Canadian International Development Agency has brought about some training programs to the MB, in which the reserve staff received training on planning/design of XBR's interpretive room and conducting social surveys among local herders. The donor agency is now launching its projects in other nature reserves in Inner Mongolia. Respondents from the MB expected the Canadian International Development Agency will initiate another extension of its project to XBR in the near future.

National Non-Governmental Organizations (NGOs): NGOs have played a critical role in PA management worldwide, particularly in building up cooperative relationships among different interest groups and stakeholders in PAs. In contrast to government agencies, NGOs are able to address management issues faced by PAs fairly efficiently because of the characters inherent with such organizations. "Being issue- and problem-specific, they can mobilize financial and personnel resources

[23] Sources: [On-line] http://www.acdi-cida.gc.ca/CIDAWEB/webcountry.nsf/vLUDocEn/7A6522C917E448D585256879006FDC67?OpenDocument#17

comparatively quickly and efficiently" (Murphree 1994: 416).

In such circumstances, NGOs in China such as The Nature Conservancy (TNC) and World Wildlife Foundation (WWF) are increasingly playing a significant role in reserve management in terms of facilitating partnerships among various government agencies, different levels of governments, the reserve managers, as well as local communities. Although thus far there has been no NGOs active in XBR, they are important potential partners of the reserve.

In August 2001, the Xilingol League government founded the XBR Management Committee which consists of three deputy directors of the Xilingol League government and the heads of fourteen relevant government departments (Han et al. 2002). Although thus far the committee has not made remarkable performance on inter-organizational cooperation and conflict resolution in managing XBR, its creation has laid the foundation for effective partnerships for reserve management. The Management Committee can be seen as a type of formal mechanism to facilitate cross-jurisdictional cooperation. Moreover, the committee has the potential to lay the groundwork for the management of the biosphere reserve as a whole unit (refer to Chapter 6 for recommendations for the formation of partnerships for XBR based on the current XBR Management Committee).

5.2 Community participation

To understand community participation in XBR, it is first necessary to have a brief appreciation of decision making processes occurring at the lowest

administrative level - the administrative village. In an administrative village, a village committee (*cunzhibu*) is responsible for the village's management. A village committee typically consists of a village chairman, a Communist Party secretary, and a village accountant. Typically the village chairman is elected by village members, often at public meetings held within the village. Electing the village chairman and attending village meetings are primary ways for villagers to participate in the decision making and management of the village. A detailed analysis of community involvement in decision making at the level of the administrative village is beyond the scope of this research. Instead, this section focuses on the assessment of community participation at the scale of the whole biosphere reserve.

5.2.1 Evaluation of the level of community participation in Xilingol Biosphere Reserve

This section evaluates the level of community participation in decision making and natural resource management in XBR, based on Arnstein's ladder of civic involvement (refer to Table 3 in Section 2.1.3). According to Arnstein's ladder of civic involvement, community participation in XBR is now on the "informing" rung. Although the distinction between "informing" and "consultation" is hard to establish, I tend to regard community participation in XBR as closer to the "informing" category than "consultation." This understanding partly depends on the statement of Chenoweth et al. (2002) that both consultation and placation are based on effective information dissemination and two-way communication, while

consultation implies that communities are informed about decisions and that their feedback is reported back to authorities. Moreover, at the level of "informing," people are informed while their feedback tends to be ignored. In XBR, the effective information dissemination and two-way communication are lacking, and the feedback from local communities is always ignored by authorities. This can be illustrated by the following statements.

During the process of designing and finalizing the Management Plans, there was no input from local communities. It is government agencies and the MB that are in charge of designing and implementing the Management Plans, while the voices from locals have not been incorporated. Furthermore, respondents claimed that they often coordinate with local governments, and then these governments, as the entities that "manage herders" (A member from the MB), convey their decisions to local people through a hierarchical administrative system. It can be inferred from these perspectives that local people in XBR are informed of decisions or programs through village meetings. In other words, locals' voices can be heard at the lowest administrative levels - the administrative villages. In such top-down, hierarchical decision making structure, it is extremely questionable that their input is collected by village committees and reported back to relevant authorities such as governments and their agencies. The whole process of informing and decision making, therefore, takes the form of top-down, one-way communication. Locals are informed; their feedback is heard at the village meetings and then is ignored by upper level decision making bodies.

On the other hand, the reserve staff and locals have face-to-face

communications when the staff visit herder households and conduct social surveys. These communications, however, have been undertaken with only a small number of households in the reserve. In addition, such visits and survey programs always take the form of one-way education and dictation rather than productive interactions. In fact, feelings of being spoken to by the reserve staff may prevent local people from learning about reserve issues and providing support for conservation programs. In sum, Arnstein's ladder of civic involvement helps to identify the lack of community participation in the management of XBR and inadequate efforts of the MB to involve local communities in decision making.

5.2.2 Community participation mechanisms in Xilingol Biosphere Reserve

As is referred to in the previous section, community participation in XBR is quite limited. While local communities act as crucial stakeholders in managing XBR and an important potential participant in the partnerships for reserve management, their involvement in the decision making and management of the reserve is greatly needed. The improvement of community participation requires effective mechanisms, among other means. In this regard, the mechanisms for public participation (see Table 4 in Section 2.1.3) provided by Mitchell (2002) are informative to provide some guides. Various people have different abilities and preferences in communication and participation. So it is obvious that innovative and situation-specific participation methods and communication styles are required to promote community participation in XBR.

Public meetings: For XBR, public workshops or public meetings have the potential to become effective participation approaches by which community members are provided with opportunities to meet with the reserve staff or government officials and with each other. In addition, through public meetings, local communities can "get a chance to present their views directly to management" (Chenoweth et al. 2002: 507).

Nonetheless, such public meetings have never been held by the MB or governments/government agencies in the reserve. In other words, public meetings open to local governments, local communities, or their village committees within XBR have been absent so far. From respondents' explanations, the absence of public meetings in the reserve is mainly due to the dispersed nature of communities and individual herder households. Respondents claimed that many herders have no transportation to commute to meeting places which may be far away from their households. In addition, local people are engaged in their household work on a day-to-day basis, which reduces their interest in such meetings. They further explained that as an alternative to such public meetings, the reserve staff make home-visits to local households. Sometimes they bring several households together when these households are near to each other or they live together, for example, the households of siblings who live together or nearby. Such small-scale gatherings can be seen as a form of public workshop held among several households.

However, all these household visits or small-scale gatherings conducted by the MB are focused on, and limited to, residents around the core areas. Generally speaking, the reserve administration and its supporting agencies have never

convened public meetings where local communities, local governments, government agencies, and other interest groups can sit together, discuss the issues faced by the reserve, and present their own needs. The mechanism of public meetings for community participation has so far not been applied in XBR.

Task force: The application of the task force mechanism for local participation is very limited in XBR. A limited number of community members have participated in a small number of conservation programs implemented in the reserve. These programs include building and maintaining fences and tourist facilities, patrolling and monitoring, grass-planting and grass-cutting, etc. Through these task forces, some local inhabitants have participated in the conservation of XBR.

Advisory groups: In some nature reserves in China, "Joint Management Committees" (*gongguan weiyuanhui*) have been established (Han 2000). Such management committees are one type of advisory groups which can address the management issues of nature reserves. However, as they are still in their infancy, these management committees are confronted with many problems and difficulties. For instance, Han (2000) claimed that in China, the management committees have put more efforts on conveying responsibilities of conservation to local communities than on coordinating with locals. Moreover, one of the important objectives of the management committees should be the involvement of local communities in the decision making and management of reserves. In other words, local communities,

whether villagers or their village leaders, must have some stake in the Joint Management Committees.

The XBR Management Committee is described in Section 5.1.2. The committee has the potential to lay the groundwork for the foundation of partnerships among a wide range of interest groups including local community members. The committee should add community representatives to its membership. It can serve as an effective mechanism for community participation in reserve management. Given the current status that there is no participatory approach through which different individuals or interest groups can discuss and address issues from the perspective of the whole reserve, the Management Committee established for XBR should take a critical role in the involvement of local communities and other stakeholders in reserve management. It can also facilitate addressing the problem that the MB has over-focused its work in very limited areas of XBR.

Social surveys: The mechanism of social surveys for public participation has been applied in XBR only a few times. Social surveys were one part of the programs that the Canadian International Development Agency initiated in XBR, which accompanied the project on Biodiversity Protection and Community Development implemented by the donor agency in six nature reserves in Inner Mongolia. According to respondents, the Canadian International Development Agency provided the reserve staff with technical support regarding social surveys. With the assistance from the experts of the donor agency, the reserve staff brought

together some households around the core areas and conducted social surveys with these people.

Environmental mediation: As is referred to above, respondents appreciated the importance of local awareness of biodiversity conservation on the management of XBR. The MB has also tried to promote public awareness of conservation through environmental education. Environmental education can help increase communities' knowledge of the reserve's values/benefits and their interest in participation in conservation activities. In this regard, the MB has visited local households, and distributed pamphlets on XBR and the *XBR regulation* to people around the core zones. All the pamphlets are printed in the Chinese language. According to respondents, they have explained the contents of the brochures to Mongolian herders with the help of translators. Additionally, the MB's interpretative room has played a significant role in environmental education for both visitors and tourists. The MB has also disseminated information about XBR and conservation to the broader public through television programs. According to interviewees, televisions are now fairly widespread among households in XBR.

In summary, in the top-down decision making process in XBR, local communities are seldom provided with opportunities to participate in reserve management. Although the reserve managers have realized the importance of involving locals in the management of XBR, the MB itself is weak in the decision making powers and processes, and it lacks the resources and authority to empower

local communities. While currently it is the local governments or government agencies, which have legal mandates in XBR, that are making decisions on reserve management, the formation of partnerships among all interest groups is inevitable for empowering both the MB and local communities in decision making and resource management. I regard, therefore, during the current stage, the mechanism of advisory groups, which currently takes the form of the Management Committee in XBR, as being the best method for involving local communities and improving the management of XBR.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

So "Is the biosphere reserve empowered to meet the goals of community-based natural resource management through formal and informal institutions?"

XBR, as an internationally recognized biosphere reserve, has not been empowered to meet the goals of CBNRM - to improve both the conservation of natural ecosystems and the socioeconomic conditions of local communities. Rather, from the perspective of the whole reserve, the existence of XBR has not exerted a favorable influence on the reserve's landscape and biodiversity conservation. In addition, local inhabitants have thus far experienced more socioeconomic losses than benefits from the establishment and management of XBR. Moreover, the existence of XBR has not provided local people with opportunities to participate in decision making and reserve management, which is a basic principle of CBNRM. In this study, the research question was explored through the assessment of institutions relative to natural resource management in XBR.

The institutional analysis of resource management practices in XBR has been quite informative for this research. The findings indicate that several institutions including the legislation, regulations, administrative structures, responsibilities associated with land and resource rights, decision making powers and processes, and community participation have great impacts on how natural

resources are used and managed in XBR. These institutions are not independent of one another; rather, they interact with one another to impact on resource use and management in the reserve. In addition, these institutions should be strengthened in order to improve resource management practices in XBR.

Firstly, the country's legislative frameworks and administrative structures for the management of PAs should be strengthened. More specifically, the PA system requires improvement in terms of clarifying the functions and properties of different kinds of PAs as well as permitted land uses in these areas. Further, there should be a holistic planning and management strategy for the establishment and management of PAs, and in particular, nature reserves. The State Environmental Protection Administration, as the central ministry responsible for the comprehensive management of nature reserves in China, can take the role of designing and enforcing the strategy. In addition, this strategy should clearly specify who should be in charge of the establishment and management of different kinds of PAs, what are their roles, the functions and properties of different categories of PAs, the procedures of PA establishment, what activities are permitted in different kinds of PAs, and what communication and coordination mechanisms are needed among different agencies when establishing and managing PAs in their own jurisdictions, etc. Moreover, for nature reserves in China, an effective legislative framework for managing these areas should be established to clarify issues concerned with reserve management such as the rules about land uses in nature reserves. A comprehensive enforcement mechanism for legislation and regulations in relation to natural resource management and PAs also needs to be

established to ensure the implementation of these legislation and regulations.

Secondly, the organizational roles and functions of the MB should be improved to facilitate the management of XBR. As the sole organization specifically established to manage XBR, the MB is not as good as it could be at fulfilling its conservation and management roles. This is implied by the limited number of projects the MB has initiated in the reserve as well as the limited functions the MB has fulfilled. For instance, the MB has done little with ecological monitoring and communication with local communities, which are two primary functions that reserve management organizations such as the MB should perform. The MB's performance on reserve management can be attributed to a lack of capacity that is due to the organization's inadequate financial and human resources and its weak decision making powers. Lack of funding exerts a great number of negative impacts on the organization, which include poor working conditions, unstable personnel makeup, limited conservation projects, the MB's direct engagement in profit-generating activities in XBR, and limited community participation in reserve management. Moreover, compared to local governments and government agencies which have jurisdictions within the reserve, and many other interest groups in XBR, the MB is relatively weak in terms of authority and decision making powers. In other words, the MB does not have any legal and administrative authority for reserve management. In this regard, the legal empowerment of reserve management organizations in China, such as the MB, is required.

The practical way to resolve the MB's limited financial and human

resources, as well as its inadequate decision making powers rests on the formation of partnerships with other interest groups and stakeholders in the reserve. Based on its available resources and capacity, the MB cannot fulfill its conservation roles alone. Instead, it has to win support from different sectors in terms of funding, manpower training, human resources, and administrative and legal support, etc. In this regard, the partnership is an inevitable way for the MB to fully perform its roles and functions.

Unfortunately, the MB has not realized the importance of building partnerships with other interest groups and stakeholders in XBR. Rather, it has attributed many of its difficulties to the lack of land rights in the reserve and has made great efforts in terms of money and manpower to achieve land rights in the core and experimental areas in XBR. As a consequence, conflicts between the MB and BLF arise, which are always centered on land use rights. In this regard, the MB is better off conforming to the existing land rights of other stakeholders in XBR and particularly BLF, which have been confirmed before the reserve was established, and turning conflicts into cooperation through founding collaborative relationships such as partnerships with these stakeholders. At this point, land and resource rights have impacted the power relationships among different entities in XBR. They also have exerted great influence on resource use and access in the reserve.

Thirdly, the institution of land and resource rights has also played an important role on people-park relationships. The conflict between XBR and local communities is also a kind of conflict between conservation and local economic development. In other words, the creation and management of the reserve have

reduced socioeconomic benefits to locals in terms of restricted resource access and use, displacement of locals, and declining living standard, etc. To defend their rights and interests, sometimes local people have to resort to violence. For example, locals have destroyed reserve facilities many times. The resolution of such people-park conflicts rests on providing locals with adequate compensation for their losses, and improving local awareness of conservation.

Although the reserve staff and BLF managers realized the importance of local benefits from the reserve, locals in XBR still bear considerable losses and costs accompanied with reserve establishment and management, as indicated by those listed in the left column of Figure 9. The compensation provided to these people, nonetheless, is far short of what is adequate. Brandon and Wells (1992) presented three ways by which the compensation of a PA to locals can take place: (1) compensate locals for the economic losses associated with the creation of a PA; (2) afford substitutes for the resource access that has been prohibited; (3) provide alternative sources of income to substitute those which are unavailable because of the PA establishment. Based on these three methods, more researchers (e.g., Brandon and Wells 1992; Munro 1995; Murphree 1994) have provided a wide range of specific approaches to improve compensation. These approaches are listed in Table 10, along with the compensation implemented in XBR. Recommendations for the application of these approaches are also provided by the table.

Table 10: Compensation

Compensation approaches*	Description of the compensation implemented in XBR	Recommendations
Substitutes for resource access	People resettled out of the buffer zones are provided with a pasture in the transition area and permits of grass cutting in the buffer zones.	
Cash payment	People resettled out of the buffer zones are compensated with RMB 30,000 *yuan.*	Cash payment is quite a straightforward approach to compensate locals. Locals are willing to accept cash compensation as it provides direct and instant benefits to them. This approach can be extended to people living in the transition area especially considering that herders in this area are unwilling to reduce their number of livestock and that the alternatives to livestock grazing are not currently profitable. For example, herders who are required to control their livestock numbers can be provided with some cash compensation for their lost economic interests.
Goods or services	People resettled out of the buffer zones are afforded with places to live, and water and electricity facilities.	This compensation approach can include other kinds of social services such as education and healthcare. The provision of social services should be extended to inhabitants in the whole reserve.
Employment and income	Locals have received jobs in building/maintaining fences and tourist facilities, as well as providing tourist services. But until now job opportunities have been quite limited and available for very few people in XBR.	Employment and income can provide direct benefits to locals. Local people should be entrusted with the duties of daily patrolling, monitoring natural resources, developing and maintaining facilities, providing tourism services, coordinating and organizing conservation programs, and others.

Low-interest loans	Not applied in XBR.	Low-interest loans should be provided to locals to operate tourism, breeding milk cows, and other small enterprises.
New skills training	Not applied in XBR.	A range of training programs such as the training on the operation of small business and livestock breeding are greatly needed in XBR. The MB should try to get support from different sectors especially NGOs to facilitate training and education and to provide resources for training programs open to local residents.
Tourism	Currently benefits of tourism to locals are confined to limited job opportunities and renting horses to tourists.	Locals can receive jobs from tourism operations. Local people often operate their own tourism business with the assistance of technical training and low-interest loans. Locals can also become tourism operators by providing transportation, housing accommodation, and food, etc. Tourism can also provide local benefits through employment opportunities such as tour guides, drivers, hotel workers, and offering cultural activities and in-park education programs.
Promotion of local development projects	Not applied in XBR.	Local development projects including trail repairs, building of schools and clinics, and the construction of other facilities and infrastructures should be implemented in XBR.
Substitutes for livestock grazing	Breeding livestock in pens and raising milk cows.	Breeding livestock in pens has thus far brought about more costs to locals than livestock grazing. Local people need technical training on breeding livestock in pens and raising milk cows to improve their operation. Further, raising milk cows is a promising substitute for livestock grazing since it can produce considerable income. Yet milk cows are expensive for locals and they need low-interest loans to get milk cows.

*The compensation approaches listed are based on those advocated by Brandon and Wells (1992), Munro (1995), and Murphree (1994).

As presented in Table 10, the compensation that has been provided in XBR is quite limited, compared to the losses locals have suffered. Respondents regarded the greatest benefits that the reserve can provide to locals have been, and will come from, tourism development. The potential for profits from tourism, however, appears unpromising, given XBR's limited tourism resources and the relatively low level of scenic attractions caused by degraded conditions of the grasslands. Overall, respondents believed that locals have lost benefits in the short term. However, they also believed these losses can be compensated for in the future by the income from tourism development. In other words, after the ecological environment in XBR has regenerated, more tourists will be attracted to the reserve, and tourism income will increase.

The prospects that respondents described seem quite promising. Nevertheless, these prospects are unlikely to come to reality in the near future, given that the regeneration of grasslands is a long-term process and there is no indication that the grasslands are getting better. In addition, even when tourism can actually bring a considerable flow of benefits, a large part of these benefits may be captured by entities other than local residents. Such possibilities are exemplified in Baiinxile Grassland Ecotourism Area.

Currently there is a wide range of public and private sectors operating tourist services in Baiinxile Grassland Ecotourism Area, which has the most scenic environment, and in turn, offers the largest potential for profits from tourism development in the reserve. This is supported by what one respondent said, indicating that most tourists just visit the same several sites in the reserve and

seldom go to other places. Almost all the sites mentioned by the respondent are situated in Baiinxile Grassland Ecotourism Area, of which Zakstai Lake is an important sight-seeing and recreation location. Surrounding Zakstai Lake are patches of fenced zones, in which tourism activities are operated by a variety of entities including the MB (its ecotourism service center is located near the lake), a fishery enterprise of BLF, a police agent, and a tax agency of BLF, etc. From the tourism activities operated by these entities, local residents are offered limited employment opportunities and limited wages. Additionally, opportunities for investing in tourism operations in Baiinxile Grassland Ecotourism Area are almost impossible for local herders, given their scarce capital resources as well as their lack of power and opportunities to obtain key tourism resources such as the rights to lease or use a plot of land in Baiinxile Grassland Ecotourism Area. In sum, in Baiinxile Grassland Ecotourism Area, it is those public or private sectors, rather than local people, that get the predominant benefits, whatever the total amount of the profits might be, from tourism.

Furthermore, while some herders have attempted to earn some money through self-investment in tourist services, their income is extremely limited. For example, from the fieldwork, I saw that some herders tried to rent their horses to tourists to ride and then they were able to earn some money. In addition, from the perspectives of respondents, renting horses to tourists is the primary approach that herders choose to invest in tourism. Herders tend to choose tourism activities requiring small inputs as they cannot afford a large capital investment particularly in light of the trouble they have getting loans. On the other hand, those tourism

activities requiring small investment such as renting horses are often the ones that generate limited income and profit. In response to the limited benefits that tourism can provide to local inhabitants, some respondents suggested that the country should provide financial support to locals for them to develop ecotourism. For instance, herders can use the money to build Mongolian tents for tourists to live in and to learn Mongolian customs and cultures.

If the PA can maintain flows of income for local communities or compensate them for their losses, and can make the benefit-cost ratio of PA conservation positive for these communities, these areas can get support from local people (McNeely 1995; Munro 1995). In this respect, the benefit-cost ratio of conservation in XBR is negative for locals. In other words, local people have experienced more economic losses than benefits from conservation activities. Not surprisingly, the reserve has so far received more resistance than support from local communities. In the short run, the MB has inadequate resources and capacity to address the conflicts, as one respondent described when being asked how local communities can benefit from the reserve:

> Currently, local communities can receive very limited direct benefits from the reserve. Now we are expecting that we can benefit from communities…[Our] mechanisms are ineffective. A person with more disease helps others, which is just a prate. We are in great need of the help from communities. This is the current status of our reserve. Of course, if [the reserve] develops in the future, and is well conserved, communities can benefit directly…People can enjoy the healthy natural environment. This is the largest benefit. It is also good if they can benefit in terms of funding or economic development. But we don't know when this can happen, or when we can achieve that. (A member from the MB)

In sum, local communities have thus far experienced few benefits from the

reserve, while bearing considerable socioeconomic costs. Throughout the world, it is increasingly perceived as unjustifiable for local people to bear the costs of PA designation and management without receiving adequate compensation (e.g., Brandon and Wells 1992: Lusigi 1995; McNeely 1995). However, in XBR, there remains a long way to go for locals to be provided with adequate benefits and compensation, given the current political and economic contexts. In other words, there is a bumpy road ahead toward the resolution of the conflicts between XBR and local communities.

Fourthly, the institutions of decision making and community participation should be strengthened. In the top-down, hierarchical decision making structure in the country, XBR is subject to the authority of a hierarchy of governments and their line agencies (refer to Figure 10), as well as other stakeholders in the reserve. In addition, XBR is a multi-jurisdictional area which is under the jurisdictions of several local governments. So it is those local governments that make decisions on reserve management. In this regard, the MB always has to coordinate with local governments to implement conservation projects. The power relationships among different stakeholders are quite complicated. In addition, conflicts among different stakeholders in XBR are frequently the case.

Moreover, local communities have seldom participated in decision making processes on the management of XBR, in spite of how significant the impacts of the decisions may be on their life. According to findings from this research, community participation is quite limited in the reserve and locals' voices are generally ignored in the decision making processes. In general, to facilitate the

management of XBR, the institutions of decision making and community participation need to be improved. Opportunities rest on the application of effective community participation mechanisms in XBR, as well as the formation of partnerships for reserve management, among others.

Finally, the partnership is an inevitable trend if XBR is to improve its resource management practices and address a series of issues including the MB's lack of financial resources and decision making powers, conflicts between different interest groups in the reserve as well as people-park conflicts, and lack of community participation in reserve management. XBR has to establish its partnerships and get support from a broad range of stakeholders and interest groups. Recommendations are provided below for the creation of effective partnerships for XBR based on the existing XBR Management Committee and Mitchell's (2002) key elements for successful partnerships (refer to Table 2).

First, the XBR Management Committee should expand their committee members or partners to encompass more organizations or groups including those presented in Section 5.1.2. According to Mitchell's (2002) key elements for successful partnerships, all partners should be involved in reserve management with equitable representation and power. This requires powers and authority to be devolved from governments and their agencies and reallocated among all partners. However, there remains a long way to go before the actual achievement of the element of "equitable representation and power" (see Table 2), given the circumstances that the Management Committee is still in its infancy, along with the current bureaucratic context of XBR. In the immediate future, it may be more

realistic for the Management Committee to involve more partners and to afford them more opportunities to provide their input in reserve management. In other words, more partners should participate in the decision making process of the Management Committee with relatively limited decision making powers. This is consistent with Mitchell (2002)'s "consultative partnerships" (see Section 2.1.3), in which government agencies actively seek advice from their partners and decide to what extent the partners' input will be incorporated into decisions.

Second, based on the elements of "compatibility between participants" and "benefits to all partners" advocated by Mitchell (2002) for successful partnerships, the committee members should sit together and define the goals and objectives of the Management Committee. The consensus of these goals and objectives should be achieved among all partners. Mechanisms such as the Management Plan for XBR can be utilized as the basis of both the clarification of the common goals of the partners and the guidance for their activities as a member of the committee.

Third, another element for successful partnerships presented by Mitchell (2002) is the "communication mechanisms." Based on this factor, effective communication mechanisms should be established in the XBR Management Committee to facilitate information sharing and two-way communication among all partners. The mechanisms can take a broad range of forms from committee meetings to newsletters. Given the current circumstances in XBR, the mechanisms which have great potential for open and transparent information sharing include committee meetings, workshops, posters, newsletters, and meeting minutes, etc. In addition, committee members should meet regularly. Decisions made by local

governments or government agencies should be made open to all partners in the committee. The advice from the committee members should be sought when significant changes are proposed with regard to reserve management (Munro 1995).

Fourth, the role of the MB in the Management Committee should be clarified and strengthened. The MB has the potential ability to act as a bridge between these diverse partners in the committee, as well as between these groups and local communities, given its role as a government appointed organization with a specific and strong focus on the management of XBR. In other words, the MB's role of coordinating between different stakeholders or interest groups in the reserve should be emphasized. This may require the empowerment of the MB in the mandate of the Management Committee. In addition, the governments or their agencies should vest the MB with more powers and authority in the decision making process of the Management Committee. The capacities of the MB in reserve management, in turn, can be promoted through supports from all partners in the committee.

Finally, local communities should be involved in the partnerships for XBR as "local participation in conservation activities is essential for building an effective partnership for conservation" (Gurung 1995: 232). This is also critical for the alleviation of the conflicts between XBR and local communities. In this regard, local communities must own some stake in the Management Committee. The committee should add community representatives to its memberships. These community representatives should be democratically elected by community members. The Management Committee, in turn, can become an effective

mechanism to improve community participation.

In sum, a strategy for improving reserve management could rely on the improvement of the abilities and constitution of the current XBR Management Committee. The Management Committee has the ability to act as an integrating force between different government agencies and between these agencies and local populations, given its constitution and its specific focus on XBR (Dower 1995). In other words, the committee could become the basis for the foundation of effective partnerships for resource management and decision making in XBR. As a management body consisting of different stakeholders, the Management Committee could manage and plan the reserve holistically and incorporate input from different sectors.

In conclusion, there is still a long road to travel for XBR before attaining the goals of CBNRM. The chance that CBNRM regimes will be implemented in XBR in the near future seems slim. This is because currently local residents have too little say in decision making and suffer "under oppressive bureaucratic constraints" (Barborak 1995: 36). In addition, "the lack of a supportive network of indigenous environmental NGOs to empower local inhabitants" (Jim and Xu 2002: 339) in China also makes such community-based initiatives difficult to apply in XBR.

Different institutions interact with each other to impact natural resource management practices in XBR. The management and conservation of XBR cannot be fulfilled by local factors alone. Rather, the management of XBR requires the improvement of much broader institutions such as the legislative and administrative

frameworks, and land tenure regimes in the country. On the other hand, local actors also play a critical role in the management of XBR because it is those local people who use natural resources on day-to-day basis and their livelihoods depend on these resources. Biodiversity conservation has to be reconciled with the socioeconomic needs of local residents. Only when it can fulfill the basic needs of local people can XBR survive and conserve the biological diversity of the grassland.

REFERENCES

Agrawal, A. and C.C. Gibson. 1999. Enchantment and disenchantment: The role of community in natural resource conservation. *World Development,* 27 (4): 629-649.

Arnstein, S.R. 1969. A ladder of citizen participation. *Journal of the American Institute of Planners,* 35 (4): 216-224.

Banks, T. 2001. Property rights and the environment in pastoral China: Evidence from the field. *Development and Change,* 32 (4): 717-740.

———. 2003. Property rights reform in rangeland China: Dilemmas on the road to the household ranch. *World Development,* 31 (12): 2129-2142.

Barborak, J.R. 1995. Institutional options for managing protected areas. In *Expending Partnerships in Conservation*, J.A. McNeely and IUCN (eds.), 30-38. Washington, D.C. Covelo, California: Island Press.

Batisse, M. 1997. Biosphere reserves: A challenge for biodiversity conservation and regional development. *Environment,* 39 (5): 6-15, 31-33.

Belsky, J.M. 1999. Misrepresenting communities: The politics of community-based rural ecotourism in Gales Point Manatee, Belize. *Rural Sociology,* 64(4): 641-666.

Bradshaw, M. and E. Stratford. 2000. Qualitative research design and rigour. In *Qualitative Research Methods in Human Geography,* I. Hay (ed.), 37-49. Victoria, Australia: Oxford University Press.

Brandon, K., Redford, K.H., and S.E. Sanderson. 1998. Introduction. In *Parks in Peril: People, Politics, and Protected Areas,* K. Brandon, K.H. Redford, and S.E. Sanderson (eds.), 1-23. Washington, DC./The Nature Conservancy: Island Press.

Brandon, K.E. and M. Wells. 1992. Planning for people and parks: Design dilemmas. *World Development,* 20 (4): 557-570.

Brechin, S.R., Wilshusen, P.R., Fortwangler, C.L., and P.C. West. 2002. Beyond the square wheel: Toward a more comprehensive understanding of biodiversity conservation as social and political process. *Society and Natural Resources,* 15 (1): 41-64.

Brosius, J.P., Tsing, A.L., and C. Zerner. 1998. Representing communities: Histories and politics of community-based natural resource management. *Society and Natural Resources,* 11 (2): 157-168.

Carroll, M.S. 1995. Community as an idea: A conceptual issue with practical implications. In *Community and the Northwestern Logger: Continuities and Changes in the Era of the Spotted Owl*, 20-30. Boulder: Westview Press.

Chenoweth, J.L., Ewing, S.A., and J.F. Bird. 2002. Procedures for ensuring community involvement in multijurisdictional river basins: A comparison of the Murray-Darling and Mekong River Basins. *Environmental Management,* 29 (4): 497-509.

Cortner, H.J., Burns, S., Clark, L.R., Sanders, W.H., Townes, G., and M. Twarkins. 2001. Governance and institutions: Opportunities and challenges. In *Understanding Community-Based Forest Ecosystem Management,* G. Gray, M. J. Enzer, and J. Kusel (eds.), 65-96. New York, London and Oxford: Food Products Press, an imprint of The Haworth Press, Inc. (Co-published simultaneously as *Journal of Sustainable Forestry*, Volume 12, Numbers 3/4 and Volume 13, Numbers 1/2.)

Crowe, G. and G. Allan. 1994. Introduction: Old and new themes in the sociology for community. In *Community Life: An Introduction to Local Social Relations,* 1-23. New York, NY: Harvester Wheatshaft.

Dower, M. 1995. Working with people who live in protected areas. In *Expending Partnerships in Conservation*, J.A. McNeely and IUCN (eds.), 215-222. Washington, D.C. Covelo, California: Island Press.

Dunn, K. 2000. Interviewing. In *Qualitative Research Methods in Human Geography,* I. Hay (ed.), 50-82. Victoria, Australia: Oxford University Press.

Environmental Policymaking in China. 1998. *China Environment Series,* 2*:* 74-78. [Online: http://www.wilsoncenter.org/topics/pubs/ACF4C9.PDF.]

Gibson, C.C., Ostrom, E., and M.A. McKean. (eds.). 2000. *People and Forests: Communities, Institutions and Governance.* Cambridge: The MIT Press.

Gray, G.J., Fisher, L., and L. Jungwirth. 2001. An Introduction to community-based ecosystem management. In *Understanding Community-Based Forest Ecosystem Management,* G.J. Gray, M.J. Enzer, and J. Kusel (eds.), 25-34. Food Products Press, an imprint of The Haworth Press, Inc.

Gurung, C.P. 1995. People and their participation: New approaches to resolving conflicts and promoting cooperation. In *Expending Partnerships in Conservation*, J. A. McNeely and IUCN (eds.), 223-233. Washington, D.C. Covelo, California: Island Press.

Han, N. 2000. Policy analysis and recommendations on management for China's nature reserves. In *Policy Study on Sustainable Management for China's Nature Reserves*, Chinese National Committee for Man and Biosphere Programme (ed.), 1-21. Beijing: Scientific and Technical Documents Press. (In Chinese)

Han, N., Jiang, G., and W. Li. 2002. *Management of the Degraded Ecosystems in Xilingol Biosphere Reserve*. Beijing: Tsinghua University Press.

Harkness, J. 1998. Recent trends in forestry and conservation of biodiversity in

China. In *Managing the Chinese Environment*, R.L. Edmonds (ed.), 187-210. New York: Oxford University Press Inc.

Ho, P. 2000. China's rangelands under stress: A comparative study of pasture commons in the Ningxia Hui Autonomous Region. *Development and Change,* 31 (2): 385-412.

Inner Mongolia. The National People's Congress. 1984 and 1991. *Regulation on Grassland Management in Inner Mongolia Autonomous Region.* (In Chinese)

Inner Mongolia. The National People's Congress. 2001. *Regulation on Xilingol National Grassland Nature Reserve.* (In Chinese)

Jim, C.Y. and S.S.W. Xu. 2002. Stifled stakeholders and subdued participation: Interpreting local responses toward Shimentai Natural Reserve in South China. *Environmental Management,* 30 (3): 327-341.

Kellert, S.R., Mehta, J.N., Ebbin, S.A., and L.L. Lichtenfeld. 2000. Community natural resource management: Promise, rhetoric, and reality. *Society and Natural Resources,* 13 (8): 705-715.

Kitchin, R. and N.J. Tate. 2002. *Conducting Research in Human Geography: Theory, Methodology and Practice*. England: Prentice Hall.

Kolavalli, S. and J. Kerr. 2002. Scaling up participatory watershed management in India. *Development and Change,* 33 (2): 213-235.

Lane, M. B. and R.E. Rickson. 1997. Resource development and resource dependency of indigenous communities: Australia's Jawoyn aborigines and mining at Coronation Hill. *Society and Natural Resources,* 10 (2): 121-142.

Leach, M., Mearns, R., and I. Scoones. 1999. Environmental entitlements: Dynamics and institutions in community-based natural resource management. *World Development,* 27 (2): 225-247.

Li, T.M. 1996. Images of community: Discourse and strategy in property relations. *Development and change,* 27: 501-527.

———. 2002. Engaging simplifications: Community-based resource management, market processes and state agendas in upland Southeast Asia. *World Development,* 30 (2): 265-283.

Li, W. 2000. Ecotourisim management in China's nature reserves. *Policy Study on Sustainable Management for China's Nature Reserves*, Chinese National Committee for Man and Biosphere Programme (ed.), 92-109. Beijing: Scientific and Technical Documents Press. (In Chinese)

Li, W. and N. Han. 2001. Ecotourism management in China's nature reserves.

Ambio, 30 (1): 62-63.

Lieberthal, K. 1997. China's governing system and its impact on environmental policy implementation. In *China Environment Series* 1, 3-8. Washington, DC.: Woodrow Wilson Center. [Online: http://wwics.si.edu/topics/pubs/ACF4CF.PDF.]

Lusigi, W.J. 1995. How to build local support for protected areas. In *Expending Partnerships in Conservation*, J.A. McNeely and IUCN (eds.), 19-24. Washington, D.C. Covelo, California: Island Press.

Mayaka, T.B. 2002. Wildlife co-management in the Bénoué National Park-Complex, Cameroon: A bumpy road to institutional development. *World Development,* 30 (11): 2001-2016.

McNeely, J.A. 1995. Partnerships for conservation: An introduction. In *Expending Partnerships in Conservation*, J.A. McNeely and IUCN (eds.), 1-10. Washington, D.C. Covelo, California: Island Press.

Michaelidou, M., Decker, D.J., and J.P. Lassoie. 2002. The interdependence of ecosystem and community viability: A theoretical framework to guide research and application. *Society and Natural Resources,* 15 (7): 599-616.

Ministry of Land and Natural Resources and State Environmental Protection Administration. 1995. *Land Management Rule for Nature Reserves.* (In Chinese)

Mitchell, B. 2002. *Resource and Environmental Management.* 2nd Edition. Essex: Pearson Education Limited.

Munro, D.A. 1995. New partners in conservation: How to expend public support for protected areas. In *Expending Partnerships in Conservation,* J.A. McNeely and IUCN (eds.), 13-18. Washington, D.C. Covelo, California: Island Press.

Murphree, M.W. 1994. The role of institutions in community-based conservation. In *Natural Connections: Perspectives in Community-Based Conservation*. D. Western and R.M. Wright (eds.), 403-427. Washington, D.C.: Island Press.

Ostrom, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action.* Cambridge: Cambridge University Press.

Ostrom, E., Gardner, R., and J. Walker. (eds.). 1994. *Rules, Games, and Common-Pool Resources.* Ann Arbor: The University of Michigan Press.

Ouyang, Z. 2000. The management regime for China's nature reserves. In *Policy Study on Sustainable Management for China's Nature Reserves*, Chinese National Committee for Man and Biosphere Programme (ed.), 22-34. Beijing: Scientific and Technical Documents Press. (In Chinese)

Patton, M. Q. 1990. *Qualitative Evaluation and Research Methods*. 2nd Edition.

Thousand Oaks, California: Sage Publications.

———. 2002. *Qualitative Research and Evaluation Methods*. 3rd Edition. Thousand Oaks, California: Sage Publications.

Price, M.F. 1996. People in biosphere reserves: An evolving concept. *Society and Natural Resources,* 9: 645-654.

Singleton, S. and M. Taylor. 1992. Common property, collective action and community. *Journal of Theoretical Politics,* 4(3): 309-324.

State Council. 1994. *Nature Reserve Regulation.* (In Chinese)

State Environmental Protection Administration and State Technological Supervision Agency. 1993. *Principle for Categories and Grades of Nature Reserves.* (In Chinese)

State Environmental Protection Administration. 1998. *China Ecological and Environmental Situation Report 1998.*

State Forestry Agency, Xilingol League Environmental Protection Bureau, Xilingol League Forestry Bureau, and Xilingol Biosphere Reserve Management Bureau. 2003. *Management Plan for Xilingol National Grassland Nature Reserve*, *Xilingol League, Inner Mongolia* (inner material). (In Chinese)

State Forestry Agency. 1985. *Regulation for Forest and Wildlife Reserves*. (In Chinese)

Tashakkori, A. and C. Teddlie. 1998. *Mixed Methodology: Combining Qualitative and Quantitative Approaches*. Thousand Oaks, California: Sage Publications.

Taylor, M. 1998. Governing natural resources. *Society and Natural Resources,* 11 (3): 251-258.

Teddlie, C. and A. Tashakkori. 2002. Major issues and controversies in the use of mixed methods in the social and behavioral sciences. In *Handbook of Mixed Methods in Social and Behavioral Research,* C. Teddlie and A.Tashakkori (eds.), 3-49. Thousand Oaks, California: Sage Publications.

The National People's Congress. 1982. *The Constitution.* (In Chinese)

———. 1985. *The Rangeland Law.* (In Chinese)

———. 2001. *The Law of the People's Republic of China on Prevention and Treatment of Desertification*. (In Chinese)

Thwaites, R., De Lacy, T., Li, Y., and X. Liu. 1998. Property rights, social change, and grassland degradation in Xilingol Biosphere Reserve, Inner Mongolia, China.

Society and Natural Resources, 11 (4): 319-338.

UNESCO. [United Nations Educational, Scientific, and Cultural Organization.] Downloaded 2005. Frequently asked questions on biosphere reserves: What is a Biosphere Reserve? The three functions of biosphere reserves. [Online: http://www.unesco.org/mab/nutshell.htm.]

U.S. Embassy Beijing Environment, Science, Technology & Health Section. 2001. Grapes of wrath in Inner Mongolia. [Online: http://www.usembassy-china.org.cn/sandt/MongoliaDust-web.htm]

Venter, A.K. and C.M. Breen. 1998. Partnership forum framework: Participative framework for protected area outreach. *Environmental Management,* 22 (6): 803-815.

Wells, M.P. and K.E. Brandon. 1993. The principles and practice of buffer zones and local participation in biodiversity conservation. *Ambio,* 22: 157-162.

Western, D. and R.M. Wright. 1994. The background to community-based conservation. In *Natural Connections: Perspectives in Community-Based Conservation,* D. Western, R.M. Wright, and S.C. Strum (eds.), 1-11. Washington, D.C. Covelo, California: Island Press.

Wilshusen, P.R., Brechin, S.R., Fortwangler, C.L., and P.C. West. 2002. Reinventing a square wheel: Critique of a resurgent "protection paradigm" in international biodiversity conservation. *Society and Natural Resources,* 15 (1): 17-40.

Xu, H. 2000. Study on funding avenues for China's nature reserves and relevant policy recommendations. In *Policy Study on Sustainable Management for China's Nature Reserves,* Chinese National Committee for Man and Biosphere Programme (ed.), 57-71. Beijing: Scientific and Technical Documents Press. (In Chinese)

Yin, R.K. 1994. *Case Study Research: Design and Methods.* 2nd Edition. Thousand Oaks, California: Sage Publications.

APPENDIX I: Questions for interviews with the Xilingol Biosphere Reserve Management Bureau and Baiinxile Livestock Farm

Organization

Questions 1-4 will be asked of one person in the Management Bureau (MB):

1. Could you talk about the administrative management structure in the biosphere reserve?
   - What is the relationship between MB and the townships/livestock farms/banners/Xilinhot Municipality in the reserve?
   - What are other government units at different levels that have a role in managing Xilingol Biosphere Reserve (XBR)? Could you present this management structure and indicate where MB fits?
   - What are the responsibilities of MB? To whom is MB responsible?
2. When was MB set up? By whom? Why?
3. What is the organizational structure of MB? How many employees in MB? How are they selected?
4. What are the funding resources of MB?

For all interviewees in MB:

5. Could you talk about your responsibilities in MB?

Land and Resource Rights

Question 6 will be asked of one person in MB:

6. Could you talk about the property rights in the transition area of the biosphere reserve?

Question 7 will be asked of one person in Baiinxile Livestock Farm (BLF):

7. Could you talk about the property rights in the farm?

Decision Making

Question 8-9 will be asked of one person in MB:

8. Who makes decisions on the land use and management in the core areas, buffer zones, and transition area respectively?
9. Does MB have any power of decision-making in the reserve? What kind of decisions can MB make?

Community Participation

For all interviewees in MB:

10. What projects or planning initiatives or public processes have MB initiated/led that you consider a success?
    What ones have not been successful?
11. What do you think you can do to improve community participation in managing land and resources in the reserve?

For all interviewees in BLF:

12. What projects or planning initiatives or public processes have BLF initiated/led that you consider a success?
    What ones have not been successful?
13. What do you think you can do to improve community participation in managing land and resources in the farm?

For all interviewees in MB

14. MB provides information and decision-making to community members through: (*Circle all that apply*)
    - Public meetings held by MB ……...1
    - Village meetings ……2
    - Newsletter ..…….3
    - Poster or flyer ..……..4
    - Website ……..……..……5
    - Other ……..…...6
      Specify_____

Questions 15-18 will be asked of one person in MB:

15. When do you hold meetings in the reserve?_____
    Where?_____
16. About how many meetings do you hold each year?
    - 1 …….1
    - 2 …….2
    - 3 …….3
    - 4 …….4
    - 5 …….5
    - Other ……..6
      Specify_____
17. How many public meetings have you held since the inception of the reserve, until this May?
    - 1 …….1
    - 2 …….2
    - 3 …….3
    - 4 …….4
    - 5 ……..5
    - Other ……..6
      Specify_____
18. When you hold a meeting, community members are informed through:
    - Village meetings ……..…...1
    - Oral notification ……..……..2
    - Newsletter ……..…….3
    - Posting or flyer ……..…….....4
    - Website ..……..5
    - Other …….....6
      Specify_____

For all interviewees in MB:

19. How would you describe the attendance of the meetings held by MB?
    - Excellent ……1
    - Very good ……...2
    - Good ……...3
    - Fair ……..4
    - Poor ……5

20. What do you think the main factor(s) affecting the attendance by community members at these meetings? (*Circle all that apply*)
    - Long journey for community members to arrive at the meeting places ……1
    - Community members' being busy in their household work…2
    - Community members' lack of interest in the issues about the biosphere reserve ……3
    - Community members' lack of interest in these meetings …..4
    - The existence of restrictions for who can participate in these meetings ……..... 5
    - Other ……..……..6
        - Specify_____

21. The community members can communicate their concerns to you through: (*Circle all that apply*)
    - Face to face talk ……...……1
    - Telephone conversation ……..……2
    - Letters ……..……...3
    - Website or email ……4
    - Village officials pass on ……...5
    - Other ……..…….....6
        - Specify_____

Biosphere Reserve

For all interviewees in MB:

22. What are major issues of natural resource management and use in the reserve? (*Circle all that apply*)
    - Conflicts between community members and the reserve …..1
    - Conflicts among different entities that have a role in managing the biosphere reserve ……..….2
    - The policies of Baiinxile Farm ……3
    - Tourism development ……...4
    - Animal husbandry ……...5
    - Other ……..……..6
        - Specify_____

For all interviewees in MB and BLF:

23. Has XBR had any impact on land use in the reserve?

I don't know ……1
No ……..2
Yes ……...3

If your choice is 3, please describe what impacts. _____

_____

_____

_____

24. Has XBR resulted in any real landscape changes in the reserve?

I don't know ……1
No ……..2
Yes ……...3

If your choice is 3, please describe what changes._____

_____

_____

_____

25. Has XBR had any impact on land use practices of the communities in the transition area?

I don't know ……1
No ……..2
Yes ……...3

If your choice is 3, please specify what communities were impacted._

_____

_____

_____

If your choice is 3, please describe what impacts. _____

_____

_____

_____

For all interviewees in MB:

26. In your opinion, what should the biosphere reserve be doing now?
27. How do communities benefit from the existence of the Xilingol Biosphere Reserve?
28. What do you think are some of the drawbacks for the communities from the existence of the Xilingol Biosphere Reserve?

For all interviewees in BLF:

29. How do communities benefit from the existence of the Xilingol Biosphere Reserve?
30. What do you think are some of the drawbacks for the communities from the existence of the Xilingol Biosphere Reserve?